REDCAY TAKES PRIZE IN LEONARD CONTEST

(Concluded from Page 1, Column 2)

Seattle, 15 units, and Thomas M. Goss, Ridgewood, L. I., N. Y., 13 units. These men received merchandise prizes.

Merchandise prizes went also to the following salesmen, with records as follows:

Ten sales before Aug. 12. L. E. Kendrick and J. R. Jones, Atlanta, Ga.; Abe Mogul, Malden, Mass.; George Wasserman, Washington, D. C.

Ten sales during contest: Max Brose, Detroit; R. J. Randolph, Peoria, Ill.; A. G. Nosen, Portland, Ore.; C. E. Ereon, Fargo, N. D.; O. S. Vincent, Los Angeles; A. J. Geraci, Washington, D. C.; J. L. Simmers, Washington, D. C., and C. J. Tragnitz, Chicago.

Five sales before Aug. 12: C. G. Hill, Providence, R. I.; Joseph F. Crosson, Torrington, Conn.; William Haaf, San Diego, Calif.; L. Robbins, Albany, N. Y.; F. B. Groves, Huntington, W. Va.; W. C. Robinson and O. W. Warren, Atlanta, Ga.; Charles H. Markson, Los Angeles; B. Oppenheimer, Philadelphia; Albert Antor, Great Neck, L. I., N. Y.; J. E. Donohan, Hamilton, Ohio; L. W. Dillman, Carruthersville, Mo.; David Blaugrund, El Paso, Tex.; P. Goldenberg, Somerset, Ky.; Jouett N. Reisz, New Albany, Ind.; J. F. Bushman, Louisville, Ky.; H. D. Turner, A. J. Davies, R. J. Laurenson and E. K. Schleichert, all of Washington, D. C.; G. P. Donnelly, Blackwell, Okla.; J. Pellegrino, Massena, N. Y.; L. J. Bomar, Pittsburgh.

Five sales after Aug. 12: H. E. Staples and G. S. Schofield, St. Louis, Mo.; Herbert Barrie and H. E. Trumbull, Phillipsdale, R. I.; Harold B. Brown and A. G. Bondie, Detroit; Morris B. Leonard, Medford, Ore.; John C. Blied, Madison, Wis.; J. C. Hummel, Kingston, N. Y.; Mrs. J. E. Ketchum, Schenectady, N. Y.; Max Swire, Albany, N. Y.; J. M. Kirk, Athens, Ga.; R. R. Roush, Casper, Wyo.; A. E. Robinson, Lawrence, Mass.; W. J. Firstbrook, Asbury Park, N. J.; Colyn C. Smith, Memphis, Tenn.; L. J. Hudson, Nashville, Tenn.; Howard Cooper, Kansas City, Mo.; E. G. Gothwaite, John K. Lauterbach and Andrew C. Dignan, all of Washington, D. C.; F. E. Reese and P. A. Marsh, Muskogee, Okla.; Clarence Stephenson, Pocatello, Idaho.

Five sales during contest: B. F. Phillips, H. Levy and L. R. Scott, all of St. Louis; C. U. Mickel, W. E. Mickel, W. E. Mickel, Jr., and T. J. Dunn, all of Omaha; L. J. Gammons, Taunton, Mass.; C. H. Sturmer, Port Huron, Mich.; J. A. Tafelski, Bay City, Mich.; Charles Smith, A. E. Waterman and H. F. Smith, Detroit.; F. G. Brown and J. B. Monroe, Daytona Beach, Fla.; C. L. Payne, Lakeland, Fla.; J. Richette, Racine, Wis.; A. Goldman and T. J. Dorato, Albany, N. Y.; L. L. Loach, Lafayette, Ga.; C. D. Davenport, H. C. Wood and M. Johnson, Los Angeles.

F. R. Flanigan, Colorado Springs, Colo.; E. E. Saricks, Casper, Wyo.; W. P. Garrison, Fort Collins, Colo.; A. C. Roux, Lowell, Mass.; B. L. Smithwick, Wilmington, Del.; A. W. Friesud, Philadelphia; W. D. Murdock, Passaic, N. J.; A. Buter, Holland, Mich.; J. W. Harrell, Wynne, Ark.; E. E. Byers, Houston, Tex.; C. F. Lister, Louisville, Ky.; B. H. Miller, Lexington, Ky.; W. M. Roberts, Winchester, Ky.; A. H. Nichols, Washington, D. C.; C. H. Jackins, Baltimore; C. R. Davis, Washington, D. C.; W. P. Walker, Burlington, Vt.; K. L. Kelley, Middletown Springs, Vt.

20 SALESMEN REWARDED BY CHICAGO FRIGIDAIRE

CHICAGO—Twenty salesmen of the Chicago district of Frigidaire Sales Corp. were awarded prizes for August sales by Harry Wines, general sales manager, at a recent celebration at the Knickerbocker Hotel.

The men who received the rewards and their respective quotas are as follows: P. D. Aepinus, 466.6 per cent; L. E. Grischeau, 244.4 per cent; C. V. Yelton, 183.3 per cent; H. O. Wilson, 175 per cent.

I. H. Purinton, 175 per cent; D. B. Anderson, 161 per cent; R. J. MacLeay, 161 per cent; C. L. Jung, 152.7 per cent; H. E. Kampp, 136.1 per cent; C. O. Nessler, 136.1 per cent; C. E. Schultz, 130.5 per cent.

F. M. Quinsler, 130.5 per cent; O. H. Albrecht, 127.7 per cent; Mrs. Shearing, 125 per cent; M. J. Goldstone, 122.2 per cent; Allied Radio Co., 122.2 per cent; H. B. Hoagland, 119.4 per cent; Gearon Electric Co., 119.4 per cent; F. L. Orcutt, 111.1 per cent, and I. S. Ritter, 111.1 per cent.

Branch employes and dealers, numbering 600 in all, combined for the celebration at the Knickerbocker Hotel. Lowell McCutcheon, general manager, welcomed the guests with a few brief words, and concluded by issuing his only orders for the night—"no speeches."

Dinner was served first, and then came raffles, dances and songs. Bill Powers, chief pepster for the General Motors Corp., was "king for a day." By his orders the use of the word "sales quota," or any reference to business, was forbidden.

OVALLE POLLS BIG VOTE IN G. E. ELECTION DRIVE

(Concluded from Page 1, Column 4)

in line for the post of secretary of commerce, displacing H. H. "Kelly" Courtright of Fresno, Calif., who is temporarily out of the running. In Courtright's district, honors went to L. H. Bennett, leading candidate now for the office of secretary of health.

E. O. Cone, El Paso, Tex., is leading his district with a total of 25,456 votes, which number makes him the leading candidate for the office of secretary of education.

More than half of all the candidates are now within striking distance of their quotas for the entire campaign, and more than a dozen have sold from 200 per cent to 500 per cent of quota to date.

LAPE JOINS SALES STAFF OF BRUNNER MFG. CO.

UTICA, N. Y.—E. S. Lape, formerly secretary-treasurer and sales manager of Kulair Corp., has joined the sales staff and sales promotion department, refrigeration division, of the Brunner Mfg. Co. of this city.

Winners Posted For All But 1 Track In Annual Kelvinator Derby

(Concluded from Page 1, Column 1)

at the end of the third furlong, hung on to take third place.

Kelvinator Pacific Co., Los Angeles, and Meachem-Fenn, Inc., Syracuse, N. Y., finished one-two at Churchill Downs track, with Carolina Kelvinator Co., Greenville, N. C., in third place.

At Belmont, Williams Hardware Co., Clarksburg, W. Va., maintained its fast pace to cross the finish line first, with John Van Benschoten, Inc., Poughkeepsie, N. Y., taking second honors. Isaac Walker Hardware Co., Peoria, Ill., came up fast to get in the money with a third place.

555, Inc., Wins at Latonia

The Latonia track saw a tight race go to 555, Inc., Little Rock, Ark., with Kelvinator Bohman Co., Hagerstown, Md., but a nose behind. Alabama Power Co., Birmingham, Ala., and Zion's Cooperative Mercantile Institution, Salt Lake City, Utah, were tied for third position.

Clark & Jones Piano Co., Birmingham, Ala., Pearson Piano Co., Indianapolis, and Northwestern Public Service Co., Huron, S. D., were one, two, three at the three quarters pole at Hawthorne and finished in that order.

At Bowie, Carroll-Moore Co., Ft. Worth, Tex., romped home the winner, while Dix Bowers Co. came up fast through the field to place. Newt Brunson, Austin, Tex., stayed in the money by coming home third.

Split $15,000 Purse

The $15,000 Derby purse will be divided among the different tracks on a percentage basis (for instance, if one track sells 15 per cent of the total sales on all tracks, that track will receive 15 per cent of the total purse). The track purse will be divided as follows: 50 per cent to the winner, 30 per cent for place, 20 per cent for show.

Pari-mutual tickets were issued to each salesman for every sale he made during the race. These tickets will be cashed according to their value as determined by the number of tickets held on each winning horse in proportion to the amount of the purse won.

Winning Stewards

Victors in the final furlong event for racing stewards (secretaries in each distributorship who carried on the promotion of the contest in their particular districts) who will receive part of the $1,000 in prizes are as follows:

Miss E. E. Laforge, Kelvinator Flint, Flint, Mich.; E. B. Jordy, John Van Benschoten, Poughkeepsie, N. Y.; C. G. Smith, Cumberland County Power & Light, Portland, Me.; Miss M. S. Scott, Kelvinator Sales Corp., Boston; A. J. Godstein, Commonwealth Edison, Chicago; S. S. Shaver, Northern States Power, Minneapolis.

Miss Rita Burns, Meachem-Fenn, Syracuse, N. Y.; Miss G. C. Weinacht, Graybar Electric Co., Cleveland; Miss C. Mandel, Raymond Rosen Co., Philadelphia; R. H. Giedd, Virginia Public Service, Alexandria, Va.; Miss Helen Snyder, Barber & Ross, Washington, D. C.; W. E. Bodart, Morley-Murphy, Green Bay, Wis.

Miss Winifred Brenig, C. F. Weily Co., Allentown, Pa.; Viola Naef, Z. C. M. I., Inc., Salt Lake City, Utah; Annette Hauser, J. E. Delworth Co., Memphis, Tenn.; Miss F. E. Keiser, Dix Bowers Co., Norfolk, Va.; C. A. Smith, Walker Electric Co., Boise, Idaho; T. J. Terry, Carroll Moore Co., Ft. Worth, Tex.; Mrs. Paul Jones, Jones-Cornett Electric Co., Welch, W. Va.; Miss Wilda Martin, North Lumber Co., Kalamazoo, Mich.

Mason Classic Leaders

The salesman in each distributorship with the greatest number of Derby tickets has been adjudged a prize winner in the Mason Classic, special event run in connection with the Derby. The victorious salesmen will receive a binder folder with a zipper arrangement, for use in carrying sales presentation material.

Names of prize winners in the Mason Classic are as follows:

G. B. Sprowls, Kelvinator Sales Corp., Pittsburgh; M. Berman, Kelvinator Sales Corp., New York City; William Shore, Raymond Rosen Corp., Philadelphia; R. R. Bassett, Virginia Public Service, Alexandria, Va.; J. W. Prinnell, Public Service Co. of Colorado, Denver; R. F. Broadbent, Jr., Graybar Electric Co., Atlanta.

J. H. Barlow, South Carolina Power & Light Co., Charleston, S. C.; J. R. Jones, Jones Cornett Co., Welch, W. Va.; A. R. Clemons, G. S. Blodgett Co., Burlington, Vt.; L. A. Finlay, Carroll Moore Co., Ft. Worth, Tex.; W. R. Richter, Dix Bowers Co., Norfolk, Va.; C. C. Taylor, Newt Brunson, Austin, Tex.

Dudley Baker, Kelvinator Pacific, Los Angeles; Merle Gray, Meachem Fenn, Syracuse, N. Y.; K. S. Isley, Carolina Kelvinator Co., Greenville, N. C.; E. M. Hooker, Thurman & Boone Co., Roanoke, Va.; E. M. Devin, Thurman & Boone Co., Roanoke, Va.; T. W. Rains, Claude P. Street, Nashville, Tenn.

C. N. Seimer, Tull & Gibbs, Spokane, Wash.; Gus Miller, Williams Hardware Co., Clarksburg, W. Va.; Max Raflowitz, John Van Benschoten Co., Poughkeepsie, N. Y.; C. H. Briggs, Isaac Walker Hardware, Peoria, Ill.; W. Conner, Clark & Jones Piano Co., Birmingham, Ala.; P. W. Fetchman, Pearson Piano Co., Indianapolis.

S. S. Schroeder, Northwestern Public Service, Huron, S. D.; Matt Mareler, 555, Inc., Little Rock, Ark.; A. W. Warne, Kelvinator Bohman Co., Hagerstown, Md.; H. C. Williams, Alabama Power Co., Birmingham, Ala.; D. J. Solomon, Zions Cooperative Mercantile Institute, Salt Lake City, Utah; C. D. Terry, Mueller Lumber Co., Davenport, Iowa.

W. E. Barrett, Mississippi Power Co., Gulfport, Miss.; F. E. Chambers, Casper Supply Co., Casper, Wyo.; L. W. Wolf, Albany Garage Co., Albany, N. Y.; C. Shinkle, Graybar Electric Co., Cincinnati; J. M. Robinson, C. I. P. S. Co., Springfield; H. H. Ritter, Elmira W. L. & R. R. Co., Elmira, N. Y.

H. Gilbert, Graybar Electric Co., Omaha; A. Gutlefinger, Stratton-Terstegge, Louisville, Ky.; D. Webster, Stratton-Terstegge, Louisville, Ky.; J. B. Kisu, Barlow Motor Co., Dayton; C. Mingo, El Paso Electric Co., El Paso, Tex.; George Schofield, Jere Woodring Co., Hazleton, Pa.

G. L. Taylor, Public Service Co. of Indiana, Indianapolis; A. Hillian, Electrical Equipment Co., Phoenix, Ariz.; E. L. Hardegree, Kelvinator San Diego Co., San Diego, Calif.; R. G. Quinn, Ozark Motor Co., Springfield, Mo.; H. S. Nelson, St. Joseph Ry., Light, Heat & Power, St. Joseph, Mo.; N. Baker, Panhandle Kelvinator Co., Amarillo, Tex.

E. C. Neuller, Weller's Inc., Asbury Park, N. J.; F. S. Meehan, Tucker Machine Co., Bridgeport, Conn.; N. Y. Pace, Daugherty Supply Co., Chattanooga, Tenn.; T. H. Smith, Daugherty Supply Co., Chattanooga, Tenn.; J. R. Palton, Daugherty Supply Co., Chattanooga, Tenn.; Jack Christian, Kelvinator Sales & Service, Fernwood, Miss.

J. Knoil, North Lumber Co., Kalamazoo, Mich.; Harry Priestly, Lowell Electric Light Co., Lowell, Mass.; B. R. Keeler, Public Service Co. of New Hampshire, Manchester, N. H.; W. D. Thompson, Missouri Power & Light Co., Kansas City, Mo.; F. Stiles, Missouri Public Service Co., Warrensburg, Mo.; F. Graves, New Hampshire Power Co., Newport, N. H.

J. W. Hartley, New Hampshire Gas & Electric Co., Portsmouth, N. H.; John Zylstia, Osen Motor Sales Co., San Jose, Calif.; T. B. Van Poole, Southern Public Utilities, Charlotte, N. C.; E. Dahl, Morley-Murphy, Green Bay, Wis.; H. P. Kelly, Kelvinator Kelly Co., Harrisburg, Pa.; F. Gorman, Consumers Power Co., Jackson, Mich.

E. G. Mathews, Mathews Refrigerating Co., Montgomery, Ala.; L. Newlin, Tom Cooper Motor Co., Oklahoma City; R. Bargelt, Ira F. Powers Furniture Co., Portland, Ore.; F. L. Smith, D. T. Lansing Co., Scranton, Pa.; A. W. MacNichols, Earle Rogers Co., Wheeling, W. Va.; L. Hampton, Sullivan Valve & Engineering Co., Butte, Mont.

H. Hawmons, Bangor Hydro Electric Co., Bangor, Me.; W. R. Collard, Peoples Globe Furniture Co., Canton, Ohio; C. Van Zandt, Illinois Power & Light Co., E. St. Louis, Ill.; F. X. Steiner, Star Electrical Co., Erie, Pa.; H. Helmuth, Carroll Moore Co., Ft. Worth, Tex.; G. F. Murray, Graybar Electric Co., Knoxville, Tenn.

Everett Southers, Cumberland Power & Light Co., Portland, Me.; Leo Holbrook, Vermont Public Service Co., Rutland, Vt.; E. B. Maxfield, Homer King, Inc., Tacoma, Wash.; John F. Turbidy, Worcester Electric Light Co., Worcester, Mass.; E. Gimse, Graybar Electric, Minneapolis; A. Buck[illegible]y, Graybar Electric Co., Cleveland.

L. R. Porter, Morley-Murphy Co., Milwaukee; J. J. Liss, Post & Lester, Providence, R. I.; K. Kachel, Metropolitan Edison Co., Reading, Pa.; S. Serbert, Metropolitan Edison Co., Reading, Pa.; A. Bell, Kelvinator Sales Corp., St. Louis; A. B. Garges, Barber & Ross, Washington, D. C.

S. Sawyer, Jr., Consumers Gas & Electric, Baltimore; Frank P. Tighe, Kelvinator Sales Corp., Boston; G. A. Wright, Kelvinator Buffalo, Buffalo; Andrew Kuehn, Commonwealth Edison, Chicago; R. A. Day, Kelvinator Sales Corp., Detroit; J. Johnson, Public Service Co., Newark.

M. E. Vangen, Northern States Power Co., Minneapolis; M. H. Kirshbaum, M. H. Kirshbaum, Sioux City, Iowa; T. Riffey, Kelvinator Stanley, Tampa, Fla.; W. Hanson, Wisconsin Valley Electric, Wausau, Wis.; J. Voytilla, Walker Electric Co., Boise, Idaho.; J. W. Riser, Broad River Power Co., Columbia, Mo.

R. Turney, H. E. Sorenson Co., Des Moines, Iowa; P. H. Montgomery, H. E. Sorenson Co., Des Moines, Iowa.; N. L. Garlock, Garlock Sales Co., Lansing, Mich.; M. L. Coleman, J. E. Dilworth Co., Memphis, Tenn.; T. M. Riddick, Jr., Philip Werlein, New Orleans; J. B. Hewes, Landis Electric Co., Lancaster, Pa.

W. Klingel, Kirkmyer Electric Co., Richmond, Va.; D. Hanson, Tri State Electric Co., Sioux Falls, N. D.; V. T. Earley, Central Hardware & Factory Supplies, Akron, Ohio; E. R. Moats, Central Hardware & Factory Supplies, Akron, Ohio; Paul Carlin, Werley's, Allentown, Pa.; C. Teagardin, Perry B. Whitsit Co., Columbus, Ohio.

G. M. Dent, Kelvinator Flint Co., Flint, Mich.; W. Dooddy, Houston Power & Light Co., Houston, Tex.; J. B. Gessner, Emmons-Hawkins Hardware, Huntington, W. Va.; Harry Haid, Wichita Kelvinator & Equipment, Wichita, Kan.; J. P. Bennett, Williamsport Auto Parts, Williamsport, Pa.; B. F. Wilson, Stambaugh-Thompson Co., Youngstown, Ohio.

W. C. Raabe, Raabe Mauger Co., Albuquerque, N. M.; T. Brickley, Green Mountain Power Corp., Bellows Falls; B. M. Sheehan, Billings Hardware Co., Billings, Mont.; T. Merservey, Lowell Merservey Hardware Co., Colorado Springs, Colo.; E. Rawles, Moore & Stewart, Inc., Gastonia, Tex.; R. F. Baker, Lawrence Gas & Electric Co., Lawrence, Kan.

L. K. Bedell, Kelvinator Appliance Corp., Miami, Fla.; W. B. Gibson, Gulf Power Co., Pensacola, Fla.; Joe Baraco, Gulf Power Co., Pensacola, Fla.; C. Hoagland, Calkins White Bros. Furniture Co., Pueblo, N. M.; Earl Bye, Saulte Ste. Marie Electric Co., Saulte Ste. Marie, Mich.

RIDDICK LEADS DISTRIBUTORS IN HOTPOINT CONTEST

(Concluded from Page 1, Column 2)

volume of sales basis, there is a special contest on "quality of sales." The models of electric ranges manufactured by the G. E. Hotpoint Range Co. have been divided into "A" models and "B" models. For the sale of an "A" model the distributor receives 30 degrees and for the sale of a "B" model he receives 10 degrees.

Each distributor has a quota of degrees which he attempts to exceed. A sterling silver cup has been offered for winners of the "quality quota" contests.

Export of Refrigerators

July, 1932, Shipments Reported by the Bureau of Foreign and Domestic Commerce, Washington, D. C.

	Electric Household Refrigerators Number	Electric Household Refrigerators Value	Electric Commercial Refrigerators Up to 1 Ton Number	Electric Commercial Refrigerators Up to 1 Ton Value	Parts for Electric Refrigerators Value
Austria	...	...	...	...	738
Belgium	24	3.347	22	2.549	2,248
Bulgaria	6	600	...	...	...
Czechoslovakia	1	150	...	...	5,380
Denmark	3	121	...	...	947
Finland	15	1,072	2	216	173
France	80	8,589	18	3.194	5,974
Germany	92	6.772	14	1.495	5,018
Gibraltar	...	...	...	...	14
Irish Free State	18	518	...	...	26
Italy	36	2,037	1	142	2,588
Malta, Gozo and Cyprus	1	89	...	...	...
Netherlands	104	9.371	15	2.571	4,700
Norway	7	442	1	155	62
Poland and Danzig	...	...	2	323	44
Portugal	21	3.026	...	...	25
Soviet Russia in Europe	5	1.234	...	...	...
Spain	38	5.543	...	...	97
Sweden	19	1.631	2	359	3,326
Switzerland	112	8.139	32	2.255	8,254
United Kingdom	246	25.026	17	1.987	9,454
Yugoslavia	2	138	...	...	...
Canada	325	18.314	156	18,763	31,216
Guatemala	3	255	...	...	...
Honduras	1	120	...	...	68
Nicaragua	...	...	...	...	38
Panama	40	4.585	2	329	1,853
Salvador	8	985	...	...	...
Mexico	14	2.366	2	493	93
Newfoundland and labrador	6	627	1	538	37
Bermudas	55	6.174	8	1.153	1,140
Barbados	1	126	...	...	...
Jamaica	7	937	1	250	128
Trinidad and Tobago	4	544	...	...	...
Other British West Indies	3	553	...	...	32
Cuba	6	586	9	1,976	1,170
Dominican Republic	15	1.751	...	...	19
Netherland West Indies	9	1.318	...	...	70
Haiti, Republic of	4	513	...	...	92
Virgin Islands of U. S.	...	...	...	...	23
Argentina	27	3.310	39	8.034	4,353
Brazil	62	5.603	14	2.733	3,354
Chile	5	384	...	...	85
Colombia	26	3.095	...	...	90
Ecuador	1	85	...	...	...
British Guiana	...	...	...	...	74
Peru	...	...	...	...	84
Uruguay	...	...	...	...	81
Venezuela	15	1.522	3	479	79
Aden	...	...	...	...	27
British India	126	11.465	7	1.555	1,419
British Malaya	27	2.770	2	279	167
Ceylon	5	537	...	...	14
China	53	6.323	11	1.662	93
Other Netherland East Indies	19	2.622	11	3.094	1,277
French Indo-China	...	...	...	...	18
Hong Kong	91	13.988	...	...	2
Iraq	...	...	...	...	56
Japan	3	486	...	...	47
Philippine Islands	59	5.885	9	581	1,558
Turkey	...	...	5	724	...
Other Asia	...	...	1	260	...
Australia	3	246	...	...	17
New Zealand	2	222	...	...	56
British East Africa	...	...	...	...	34
Union of South Africa	111	12.652	44	12.401	3,102
Other British South Africa	6	743	...	...	98
Egypt	3	422	...	...	...
Algeria and Tunisia	38	3.295	5	551	39
Madagascar	1	135	...	...	...
Morocco	50	7.500	10	1.038	1,358
Mozambique	3	410	...	...	...
Canary Islands	9	768	...	...	...
Total	2,076	$202,067	459	$ 72.139	$107,213
Shipments to Hawaii	457	$ 55,470	49	$ 8,257	$ 4,603
Porto Rico	61	$ 9,028	10	$ 1,414	$ 1,588

WRITTEN TO BE READ ON ARRIVAL

Merchandising Section

IN TWO PARTS PART ONE

ELECTRIC REFRIGERATION NEWS

Registered U. S. Patent Office

The business newspaper of the refrigeration industry

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TEN CENTS PER COPY

JULY SALES NET $177,090.77 TAX TO GOVERNMENT

All Taxes Fail To Reach Budget Amount By 58%

WASHINGTON, D. C.—Taxes collected in August on July sales of household mechanical refrigerators by the U. S. government amounted to $177,090.77, according to statistics made available by the Bureau of Internal Revenue.

The total revenue from the excise and miscellaneous taxes failed by 58 per cent to reach the total which it should if the taxes are to fulfill the estimates laid down for them by the Treasury Department, according to the statistics.

Twenty-four new excise and stamp taxes brought in $19,620,288 during August, and four taxes on which the rates were raised showed an increase of $2,565,788 over collections for the same month a year ago, the figures reveal.

To meet the treasury's estimates the new taxes should have yielded approximately $46,700,000, and the taxes with higher rates should have shown an increase of $7,290,000.

Because the government's budget will not be balanced unless the new taxes bring in their estimated totals during the rest of the fiscal year, eventual enactment of a general sales tax to cover the deficit, which reached $395,788,700 on Sept. 19, was predicted orally at the Treasury.

None of the new taxes, except a minor levy on boats and another on safe deposit boxes, yielded during August one-twelfth of the total which the Treasury estimated would be brought in during the whole fiscal year. On this basis the new taxes will fall more than 50 per cent short of reaching the estimated total.

Of the new excise taxes, the Federal gasoline tax of one-cent a gallon brought in the most money during August, $8,944,875. The two-cent levy on each bank check and similar instrument was the second largest revenue source, bringing in $3,364,251.

The tax on tires and tubes was third with collections of $1,587,732. No other new tax produced $1,000,000, although on the basis of the Treasury's estimates for the fiscal year 10 of the new levies should yield $1,000,000 or more each month.

McCREA VOTERS POLL LARGEST G. E. BALLOT

CLEVELAND, Oct. 3.—(Special Wire to ELECTRIC REFRIGERATION NEWS)—Charles L. McCrea, General Electric distributor in Washington, D. C., presidential candidate of Refrigerania and Generalissimo of the allied armies of the same nation, turned in a total of 44,112 votes for the fourth week of the "Monitor Top Election Campaign."

It was the largest number turned in by any of the candidates for last week, and enabled McCrea to jump from 38th to 11th place in the list of candidates. Meanwhile Albert Ahrens, distributor for G. E. in Oklahoma City, who has led all of the candidates since the polls

Concluded on Page 2, Column 4)

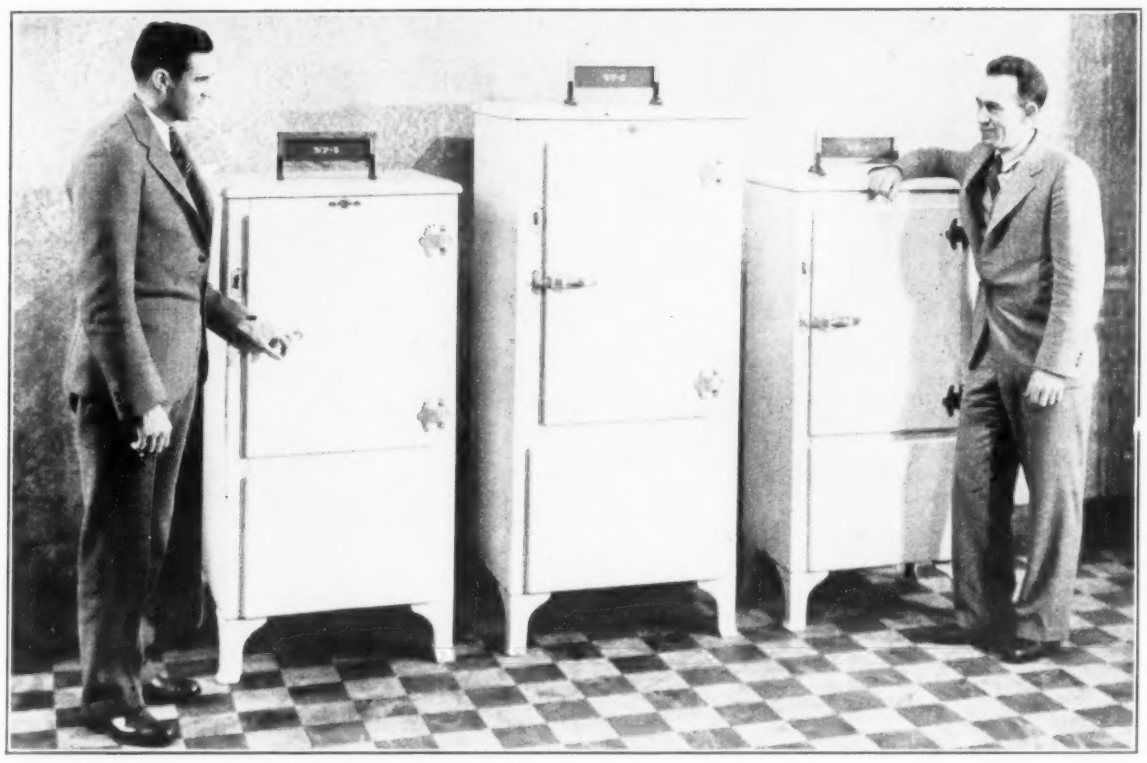
MAGINNISS, KULICK NAMED MAJESTIC FIELD MANAGERS

CHICAGO—Thomas H. Maginniss, formerly with Kelvinator Corp., and B. L. Kulick, until recently with Specialty Wholesalers, Inc., former Majestic distributor in Buffalo, have been added to the factory sales force of Grigsby-Grunow Co., according to John F. Ditzel, refrigeration sales manager.

Maginniss has had seven years' experience in refrigeration, three of which were as district manager in Iowa, and the past four as district manager in Chicago for Kelvinator. He will contact Majestic distributors in Chicago, Detroit, Cleveland, Toledo, Columbus, Ohio, and South Bend, Ind.

Kulick was sales manager with the previous Majestic distributor for two years, preceeding which time he spent two years as retail sales manager for General Electric Co. in the Buffalo district. He will cover central New York State, Pittsburgh, and Erie, Pa.

So Mr. Newell Says To Mr. Newill——



H. W. (Hike) Newell, vice president in charge of sales for Frigidaire Corp., says "Ed, here are three swell jobs," to E. B. Newill, right, vice president in charge of engineering. The models were introduced this week.

WILSON TAKES CHARGE OF COPELAND FIRM

MT. CLEMENS, Mich. — William Robert Wilson, chairman of the board of Copeland Products, Inc., has been asked by the board of directors to become president of the company to succeed Louis Ruthenburg who recently resigned as president and director.

Mr. Wilson has been identified with large industries in Michigan for many years, having been president of the re-

President

WILLIAM ROBERT WILSON

organized Maxwell Motors Corp., president of the Guardian Trust Co., reorganizer of the Murray Body Corp., and more recently vice president and general manager of Reo Motor Car Co.

The present Copeland Products, Inc., was organized in 1925. The factory was removed from Flint, Mich., to Detroit, and in 1929 a large and more modern plant was acquired in Mt. Clemens, Mich.

16 COOPER SALESMEN SEE WORLD SERIES GAMES

CHICAGO—Sixteen salesmen and sales supervisors of R. Cooper Jr., Inc., Chicago General Electric distributor, winners in the Cooper World Series refrigerator sales contest, received tickets to the World Series baseball games played Oct. 1 and 2 at Wrigley field here.

Winners of tickets were as follows: S. A. Ross, S. T. Wright, and C. H. V. Mueller, apartment house salesmen; E. F. Heyden, J. F. Eme, G. E. Riley, G.

(Concluded on Page 2, Column 3)

Leonard Will Hold 52nd Convention Oct. 11, 12

DETROIT—Leonard Refrigerator Co. of Detroit and Grand Rapids, Mich., will hold its 52nd annual distributor convention here, Oct. 11 and 12. Indications are that the entire distributor organization will be present for the sessions, it was announced by Robert I. Petrie general sales manager.

Tuesday, Oct. 11, will be given over to business sessions, featured by introduction of the new Leonard line for 1933, unfolding of merchandising and advertising plans for the ensuing year and addresses by Leonard officials.

Among the speakers will be George W. Mason, chairman of the board and president of the company; H. W. Burritt, vice president in charge of sales; Mr. Petrie; Albert M. Taylor, director of merchandising; C. M. Armstrong, vice president of the Refrigeration Dis-

(Concluded on Page 2, Column 3)

DURHAMER MADE JEWETT DISTRICT SALES MANAGER

BUFFALO—W. L. Durhamer, formerly retail sales manager of Graybar Electric Co., has been appointed district representative in the Cleveland territory for the Jewett Refrigerator Co., according to Edgar B. Jewett, president. His district will include all of Ohio, except the Cincinnati and Dayton territories.

Durhamer has had a long and active history in the refrigeration industry. In 1922, with E. W. Farr, he started the Kelvinator-Cleveland Co., as Kelvinator distributor in Cleveland. For five and a half years he was vice president in charge of sales, and then sold out.

His next position was sales manager of the Strelinger-Copeland Co., Copeland distributor in Detroit. A year and a half later this company was sold and Durhamer took over the sales management of A. L. McCormick, General Electric distributor in Detroit.

When McCormick sold his interests two years later, Durhamer returned to Cleveland, and was appointed retail sales manager of the Cleveland branch of Kelvinator, and later held this same position with Graybar when Kelvinator sold the branch and Graybar was appointed distributor. From this position he comes to Jewett.

MARSHALL FIELD & CO. SELLS U. S. HERMETIC

CHICAGO—Marshall Field & Co., Chicago's largest department store, is now offering for sale the U. S. Hermetic electric refrigerator, manufactured by the U. S. Radio & Television Corp., Marion, Ind.

BASSETT LEADS ALL IN KELVINATOR SALES

DETROIT—Richard Bassett, salesman for the Virginia Public Service Co. of Alexandria, Va., topped all Kelvinator salesmen during the Derby contest period, reports showing him to be the largest individual seller of units in that period.

Final results of the race on the Pimlico track, which were not quite complete when the results of the other

Champion

RICHARD R. BASSETT

tracks were published in the Sept. 28 issue of ELECTRIC REFRIGERATION NEWS, find Kelvinator-Pittsburgh the winner, with Raymond Rosen & Co. of Philadelphia in second place, and Kelvinator-New York taking the show money. It has also been announced that a check on returns shows Kelvinator-St. Louis in a tie for third on the Churchill Downs oval.

During the course of the contest lead-

(Concluded on Page 2, Column 5)

TRITLE ELECTED PRESIDENT OF NEMA

NEW YORK CITY—J. S. Tritle of Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., was named president of the National Electrical Manufacturers Association for 1932-1933 at the annual meeting of the association at the Westchester Country Club, Rye, N. Y.

Otto H. Falk, Allis-Chalmers Mfg. Co., Milwaukee, was elected first vice president; D. R. Bullen, General Electric Co., Schenectady, N. Y., second vice presi-

(Concluded on Page 2, Column 3)

STATAFLEX USED IN 3 PORCELAIN FRIGIDAIRE UNITS

Aluminum Foil To Be Featured; Prices Lowered

DAYTON, Oct. 3.—Three new all-porcelain electric refrigerator models using the Stataflex principle of construction were announced today by Frigidaire Corp.

These new models are to be known as the WP-4, WP-5, and WP-6, according to H. W. Newell, vice president in charge of sales. The 4-cu. ft. box is to sell (installed) at $160, the five at $190, and the six at $218.50, plus freight charges.

This announcement comes closely on the completion of the 20-day report of Frigidaire sales which showed a 25 per cent net increase in household sales for the first 20 days of September over the same period in August.

"The business trend, and the reception accorded the Stataflex idea and the new prices by our dealers, salesmen, and the buying public," Newell says, "caused us to adopt Stataflex for three porcelain models, and to bring them out now instead of later as an indication of the trend of household appliances in 1933."

National advertising will break in more than 500 strategically located newspapers Oct. 8.

Contest Judges

DAYTON—Lowell Thomas, author and radio star; Miss Katherine Fisher, director of Good Housekeeping Institute, and F. M. Cockrell, publisher of ELECTRIC REFRIGERATION NEW, have been selected as judges in the Frigidaire radio contest, now on the air.

In this contest a Cadillac, Buick, Oldsmobile, Pontiac, Chevrolet, Frigidaires, and a number of cash prizes will be awarded.

The judges will meet in New York City early in November to award the prizes.

DAILY, LEAVENWORTH SPEAK AT CONVENTION

NEW YORK CITY—"Selling Economy" is to be the major theme of the Direct Mail Advertising Association Conference and Exposition which will be held at the Hotel Pennsylvania here, Oct. 5, 6, and 7.

"Instead of having speakers with general topics concerning economic conditions, or the functioning of specific direct mail campaigns, we have turned the entire convention into a clinic on sales," states Ben J. Sweetland, president of the Direct Mail Advertising Association.

Among the speakers on the convention program will be Walter J. Daily, advertising and sales promotion manager of the electric refrigeration department, General Electric Co., and Ralph Leavenworth, advertising manager of Westinghouse Electric & Mfg. Co.

Frigidaire Corp. will be awarded recognition as one of the producers of

(Concluded on Page 2, Column 1)

GREAT LAKES NELA GROUP TO DISCUSS REFRIGERATION

CHICAGO—"Refrigeration" and "Air Conditioning as a Central Station Opportunity" will be among the subjects discussed at the executive conference of the Great Lakes division of the National Electric Light Association to be held at French Lick Hotel, French Lick, Ind., Oct. 6 and 7.

This is to be strictly a Great Lakes division conference and there will be no outside participants except President Cortelyou and Executive Director Weadock. All men in the division are invited to take part in the discussions.

Other subjects to be treated will be "Present-Day Power Sales Problems," "Stimulating Sales Through Independent Outlets," "Electric Cookery," "Present Rural Service Problems," "Must We Change Our Sales Methods?" "Water Heating," and "Personnel."

W. J. Daily, Ralph Leavenworth To Speak at Direct Mail Convention

(Concluded from Page 1, Column 5)

the 50 best direct mail advertising campaigns of 1932 at one of the sessions.

The first general session of the convention will open with a luncheon at 12:45 Wednesday noon, Oct. 5. Sweetland will preside, and the address of welcome will be given by Grover A. Whalen, president of the New York Advertising Club.

The first speaker of the convention will be Lee H. Bristol, president of the Association of National Advertisers and vice president of the Bristol-Meyers Co. of New York City. He will talk on the subject: "Advertising's Biggest Opportunity—and a Challenge to Direct Mail."

"How to Turn People into Gold" will be the topic discussed by the second speaker of the conference, Kenneth Goode, author of the book by that name, and also author of books such as "What About Advertising" and "More Profits from Advertising."

Borden and Busse will give a dramatic demonstration of the "Six Cardinal Principles of Salesmanship," six acts in which the buyer and the seller engage, as the third feature on the afternoon program.

The annual business meeting of the association will be held Wednesday evening at 6 o'clock at the Hotel Pennsylvania. Later in the evening an informal dance will be held on the eighteenth floor of the hotel.

On Thursday morning, the topic "How to Secure Action" will be discussed. There will be four divisions to the topic, the first being "Headlining for Action," a discussion of headlines and their effect on sales cost, under the leadership of John Caples, Batten, Barton, Durstine & Osborn, New York City. Mr. Caples is author of "Tested Advertising Methods."

Testing Copy for Action

The second feature will be "Testing Copy for Greatest Action," which discussion will be led by S. H. Giellerup of Marschalk & Pratt, New York City. "Buyers' Minds are the Market" will be the third feature and will be discussed by Stuart Cowan, president of Cowan & Dengler, Inc., New York City.

The fourth feature will be a discussion of "How to Get Action by Balancing the Advertising Program—with the Right Kind of Coordination of All Mediums." This topic will be handled by Mr. Leavenworth of Westinghouse.

The entire Thursday afternoon program will be a typical plan board meeting of an agency where direct mail advertising programs are being originated. Grouped around the conference table will be: A man who handles the general plan, a man who will handle the copy theme, the visualizer, the market analyst, and the production experts. There will be 10 advertising specialists on the platform in addition to the speakers.

Conference Board Plan

The idea of the conference board will be to discuss two advertising problems. The first problem will be "Developing a Business Travel Planning Service" and the advertising manager who will present the plan will be Robert Smith of the American Airways, St. Louis.

The second problem will be "Securing Dealer Cooperation for a New Model" and will be handled by Gordon Laurence, advertising and sales promotion manager of the L. C. Smith & Corona Typewriters, Inc.

Thursday evening, entertainment to be known as a "Night in New York" will be afforded the delegates. The ballroom of the Hotel Pennsylvania will be converted into a night club, and there will be a continuous routine of dancing, acts and prize drawing, with an interruption at midnight for supper.

Friday morning the "Better Letters" session will be held. Robert Collier of Robert Collier, Inc., will be chairman. Robert K. Orr, president of the Wolverine Insurance Co., Lansing, Mich., will tell "How We Increased Our Business 55 per cent in 1931 with Letters—and How We Write Them."

"How Novel Letter-Ideas Get Action in 1932" will be discussed by Mansfield Mills of Mills-Wolf, Inc., Tulsa, Okla. "How to Put Selling Appeal Into Your Physical Presentation," "Putting Pulling Power Into Your Copy," and "How Sales Letters Fit Into Our National Advertising Campaign" will be other topics on the morning's program.

Daily on Program

The final afternoon of the convention will witness a crystallizing of the selling theme of all the conference discussions into the stories of successful applications, and a demonstration of applied selling principles by men who have actually applied these principles successfully. Robert E. Ramsay of the Robert E. Ramsay Organization, New York City, will be chairman.

Mr. Daily of General Electric Co. will speak on "You Need a Selling Plan to Sell—and to Help Men to Sell."

"How We Turn Iron into Gold by Advertising and Salesmanship" will be told by Dale Wylie, sales promotion manager of the Iron Fireman Mfg. Co., Cleveland. The final talk will be "What Direct Mail as a Selling Medium Means in the Distribution of Merchandise—and How We Use It"to be given by P. J. Kelly, advertising manager of the Goodrich Tire & Rubber Co., Akron, Ohio.

Following this there will be presentation of awards for the 50 direct mail leaders. For the fifth consecutive year, Frigidaire Corp. has been awarded recognition as one of the producers of the 50 best direct mail advertising campaigns.

The closing feature of the convention will be a summarization of the highlights by John Howie Wright.

There will be departmental programs as well as the general session. These will be held Wednesday morning and will be under five headings, retail, industrial, house organ, financial, and social service.

Joins Brunner

E. S. LAPE
Former Kulair executive takes new position with Brunner Mfg. Co.

COOPER SALES LEADERS GUESTS AT WORLD SERIES

(Concluded from Page 1, Column 2)

E. Gering, E. M. Brady, J. F. Phillips, and P. N. Scott, retail salesmen.

G. G. Rifas and K. H. Anderson, commercial salesmen; Harry Cagney, salesman in the main Cooper salesroom; W. R. Burns, apartment house department manager; and Dave McGillivray, and R. B. Lowell, retail sales managers.

Retail Salesmen Brady and Phillips each received two tickets, because their records for the contest, which opened Sept. 19 and closed at 8:30 a. m. on Oct. 1, showed that not only did they sell a large number of units, but also that most of their sales were of large size models.

All contest winners were notified two hours before the game on Oct. 1 that they had been successful in the competition.

Branch Moved

CHICAGO—South side branch of R. Cooper Jr., Inc., Chicago General Electric distributor, has been moved from 6901 Stony Island Ave. to larger quarters at 7600 Cottage Grove Ave., according to S. Nides, Cooper sales promotion manager.

The new store has more than 200 ft. of window space, according to Nides. An all-electric kitchen is being built in the show window on one side of the store.

Both the south side apartment house division, under W. R. Burns, and the south side retail division, directed by Dave McGillivray, will have headquarters at the branch.

LEONARD TO HOLD 52ND CONVENTION OCT. 11, 12

(Concluded from Page 1, Column 3)

count Corp.; and E. A. Seibert, national service manager.

Mr. Mason will discuss his views of the immediate future of electric refrigeration, based on "firing line" observations made during a recent tour of the United States in the company of Mr. Burritt.

Following the business sessions, which will be held at the Players' Club, a banquet will be staged for the group at the Book-Cadillac Hotel. Strickland Gilliland, humorist, will be the principal speaker.

Wednesday morning, Oct. 12, will be given over to a tour of inspection of the company's plant, and the afternoon to a cruise on Lake Erie aboard the Canadian *S. S. Peele.*

GASTON MUSIC CO. NAMED PHILCO DISTRIBUTOR

HASTINGS, Neb.—Gaston Music & Furniture Co. here has recently been appointed distributor for Philco radios in 26 counties in central Nebraska, according to C. E. Uerling, secretary and treasurer of the Gaston Co.

The Gaston Music & Furniture Co. is also interested in getting a line of electric refrigerators for distribution, according to Uerling.

TRITLE ELECTED PRESIDENT OF NEMA

(Concluded from Page 1, Column 4)

dent; W. E. Sprackling, Anaconda Wire & Cable Co., New York City, third vice president; S. L. Nicholson, Westinghouse Electric & Mfg. Co., New York City, fourth vice president; F. R. Fishback, Electric Controller and Mfg. Co., Cleveland, fifth vice president; and R. H. Goodwillie, Otis Elevator Co., New York City, treasurer.

DISTRICT MANAGERS CONVENE

DETROIT—District managers of Kelvinator Corp. are convening with executives at the main office this week, to aid in the formulation of merchandising plans for next year.

McCrea Polls Big G. E. Ballot

(Concluded from Page 1, Column 1)

were opened is showing appreciable signs of weakness as M. E. Brown, representing A. H. Thompson-Sterling of Louisville, Ky., and N. K. Ovalle of Harrisburg, Pa., are showing more and more strength. Ahrens' 14,157 votes for the week give him a total of 119,781 as compared to 113,120 for Brown and almost 99,000 for Ovalle.

While Brown and Ovalle now are leading for the offices of vice president and secretary of state, respectively, A. Wayne Merriam, distributor in Albany, N. Y., also maintains his advantage in the race for secretary of the treasury. R. Cooper Jr., Chicago distributor has a generous lead over his nearest competitor in his campaign for secretary of commerce.

H. H. Kelly Courtright turned in more than 13,000 votes for the week. Candidate Courtright now leads all others aspiring to the office of health.

The sixteen leading candidates in the race for the presidency average so far from 100 per cent to 200 per cent of quota. The average quota to date is approximately 100 per cent. This figure is expected to become larger as the campaign continues, due principally to the use of the Banclock, the user prospect plan, and the G. E. Junior, according to leaders in the campaign.

GENERAL ELECTRIC UNITS INSTALLED IN STORE CHAIN

NEW YORK CITY—The installation of more than 70 separate General Electric units in the 40 stores that comprise the Horn and Hardart chain of cafeterias and retail stores is the record made by A. B. Salto of the commercial department of Rex Cole, Inc., according to L. Howard Jenks, Jr., manager of the commercial department.

Refrigeration for almost every possible use is included in the installations. The specifications made by C. H. Schutze, engineer in charge of the stores, included both standard and special models.

While a complete list of the addresses of the stores and the equipment installed is not obtainable, it was announced that recent deliveries have been made to 270 East Fordham Road, 25 West Fordham Road, 15 Park Row and 121 East 170th St.

Display cases with air-conditioning units have been installed in most of the Horn and Hardart stores. Several CS-270's, with double fronts, have been installed in such a manner that food can be pushed through the box from the kitchen. The exterior of the cabinets is porcelain, shaded to represent grained walnut.

ELECTRICITY PRODUCTION FOR SEPT. 10 DECREASES

NEW YORK CITY—A decrease of 8.7 per cent for the week ending Sept. 10, 1932, as compared with the same period for 1931, was recorded in the production of electricity by the electric light and power industry of the United States, according to the National Electric Light Association.

Production for that week this year was 1,443,977,000 kwh. as compared with 1,582,267,000 kwh. for last year.

Atlantic seaboard shows a decrease of 3.8 per cent from last year, while New England shows a decrease of 3.9 per cent.

The central industrial region, outlined by Buffalo, Pittsburgh, Cincinnati, St. Louis and Milwaukee, registers as a whole, a decrease of 13.1 per cent. The Pacific Coast shows a decline of 7.5 per cent below last year.

REX COLE EMPLOYES GIVE REFRIGERATION SKIT

NEW YORK CITY—Lawrence R. Hills, sales promotion department; Miss Bernice Thorn, sales promotion department; and Miss Emma DeVoe, permanent property department are appearing in a skit to be offered by Rex Cole, Inc., General Electric distributor for New York City, at the New York Edison System's Refrigeration Revue, being held Oct. 3 to Oct. 7, in the Electric Institute, Grand Central Palace, here.

The revue, which will comprise three skits, entertainers, one speaker, and music, will begin each of the scheduled evenings at 8:30. Home economics demonstrators will be present at each session of the revue.

Miss Neva Atkinson of the New York Edison Co. is in charge of speakers, home economists, tickets, and programs.

FRIGIDAIRE DETROIT DISPLAY ROOM MOVED

DETROIT—Frigidaire Sales Corp., Detroit branch, has moved its sales and display room in the General Motors building from its former location, which faced on Cass Ave., to a suite in the first floor interior, facing the main floor lobby.

BASSETT LEADS ALL IN KELVINATOR SALES

(Concluded from Page 1, Column 4)

ing Salesman Bassett sold 111 Kelvinator domestic models to officers of the United States Army stationed at Fortress Monroe, Va., for installation in their living quarters. In addition, he placed Kelvinators in the Post Exchange restaurant, in the hospital diet kitchens at nearby Langley Field, and Kelvinator water coolers in several of the officers' clubs at both Fortress Monroe and Langley Field.

Individual Contracts

The officers at Fortress Monroe contracted for their refrigerators individually, as the government discontinued the former practice of furnishing refrigerators for the quarters of army officers. A refrigeration committee, composed of a group of officers and approved by the commanding general of the post, made a detailed survey of the numerous proposals submitted, and selected the Kelvinator proposal from the 15 bids submitted.

Mr. Bassett reports that several of the officers who had electric refrigerators installed in their quarters at Fortress Monroe and Langley Field have since been transferred to posts in Hawaii and the Philippines, and in moving their belongings, hoisted their refrigerators into big bombing planes, and flew them across country for shipment via transport to their stations at insular posts.

Won Previous Prizes

Winning honors as a salesman is nothing new to Bassett. In March, 1931, he was given a trip to the Kelvinator factory in Detroit as a reward for leading all of his fellow-salesmen in the "Seven Sevens" campaign.

Prizes won on each winning ticket will be distributed as follows:

Pimlico—Won by Pittsburgh, $2.47; second, Philadelphia, $1.18; third, New York City, $.32.

Churchill Downs—Won by Los Angeles, $1.43; second, Syracuse, $1.14; tied for third, Greenville-St. Louis, $.72.

Arlington Park—Won by Alexandria, $1.24; second, Wiswell of Chicago, $1.13; tied for third, Denver-Atlanta, $.67.

Hawthorne—Won by Birmingham, $1.14; second, Indianapolis, $1.32; third, Huron, $1.04.

Latonia—Won by Little Rock, $1.70; second, Hagerstown, $1.24; tied for third, Salt Lake City-Alabama Power, $1.07.

Washington Park—Won by Charleston, $1.89; second, Welch, $.84; third, Burlington, $1.21.

Laurel—Won by Roanoke, $1.49; second, Nashville, $1.11; third, Spokane, $.78.

Belmont—Won by Clarksburg, $1.33; second, Poughkeepsie, $1.07; third, Peoria, $.90.

Bowie—Won by Fort Worth, $1.46; second, Norfolk, $1.22; third, Austin, $.90.

Fairmont—Won by Davenport, $1.48; second, Gulfport, $.88; third, Casper, $1.14.

After Five Years · · Still the

STANDARD OF EXCELLENCE

· · and lowest in cost!

- **1 out of 3 homes having electric refrigeration today, has a G-E Monitor Top Refrigerator.**
- **Product of 15 years of research . . . with an unparalleled 5 year performance record.**
- **Famous sealed-in-steel Monitor Top mechanism . . . requiring no attention, not even oiling . . . with a 4-Year Service Plan.**
- **All-steel cabinet built to last a lifetime . . with sliding shelves and exclusive easy-cleaning features.**
- **Available terms as low as $7 down and $7 a month.**

BORN of research, correct in design, proved in service . . . the General Electric Monitor Top Refrigerator sets the standard of refrigeration excellence. Born a leader, it continues a leader. Today, one out of every three homes with modern refrigeration has a General Electric Monitor Top.

After more than five years service in all parts of the world, under all conditions and in all climates, the Monitor Top is still universally recognized as the finest refrigerating mechanism ever conceived. Outstanding in its simplicity, with a performance record that is unmatched in the industry . . . it employs a basic principle so sound that the Monitor Top mechanism continues unchanged year after year.

General Electric Company, Electric Refrigeration Department, Section DF101, Hanna Bldg., 1400 Euclid Ave., Cleveland, Ohio.

General Electric retailers have a *complete* line to offer. In addition to the famous Monitor Top refrigerator they offer G-E Junior, the outstanding low-price value in the conventional type field. G-E Junior is built for those to whom original low price is most important today. G-E Junior carries the standard one-year guarantee.

GENERAL ELECTRIC

ALL-STEEL REFRIGERATOR

ONE OUT OF THREE IS A GENERAL ELECTRIC

News of Companion Lines of Electric Appliances

ALTER TELLS PLANS FOR STOKER DEALERS

CHICAGO—Distributors and dealers for the Auto-Home domestic stoker will be given exclusive and protected territories, according to Harry Alter, president, The Auto-Home Stoker Corp.

Close supervision of inventory is recommended by Mr. Alter, who believes that a retail dealer should maintain but one or two stokers on display in his place of business.

Automatic Draft Control

The Auto-Home stoker will operate with any type of automatic draft control. While there are several hundred thousand homes with central heating plants that at the present time are equipped with automatic draft controls, there are many potential buyers of the Auto-Home stoker who are prospective buyers of automatic draft controls at the same time, and Alter is urging both retail and wholesale distributors to take on the sale of a good automatic draft control.

The Auto-Home domestic stoker is the result of more than eight years of development and research on the part of Fred W. Vodoz, consulting and experimental engineer. Details of the stoker's operation are as follows:

A switch which is operated by the fire arm and fire brick turns on the electric current when the level of the fire drops. The 1/6-hp. Westinghouse reversible motor goes into action with a simple belt drive through a reducing gear and worm, driving a rack running the full length of the machine.

A shovel is mounted onto the rack which is fed with fuel from the hopper. In back of the shovel and connected with the rack, is a ram or pusher. The rack drives the shovel into the furnace. It has adjustable stops so that the stroke of the shovel can be regulated.

Shovel Enters Furnace

When the shovel has reached a predetermined point inside the furnace, a latch is tripped and the ram or pusher starts forward slowly pushing the fuel off the shovel onto the top of the fire bed. At the limit of the stroke of the pusher a switch is automatically thrown, reversing the direction of the motor.

This reverses the direction of the rack which slowly brings both the pusher and the shovel out of the furnace into the normal position inside the machine.

At the return stroke of the rack when it reaches its final position the current is automatically cut off. Then the stoker is at rest until more fuel is called for by the receding position of the fire level, at which time the operation is repeated.

Underneath the main driving gear fastened on the end of the shaft is the ash shaker arm.

This arm slowly revolves and in revolving, since it is connected by an adjustable rod to the handle of the grate shaker on the furnace, it slowly, steadily shakes the grates with a short stroke only during the refueling period of two minutes. When the motor is shut off, the grate shaking stops—and remains inactive while the stoker is at rest.

APARTMENT FEATURES G. E. HOTPOINT RANGES

OAK PARK, Ill.—General Electric Hotpoint ranges are featured in apartment house advertising sponsored by F. C. Pilgrim & Co., realtor here. The company has equipped each of the six $50-per-month apartments in a Harrison St. building with Hotpoint ranges.

Charts Hughes Cup Sales

Martha Anne Bohan is entrusted with the work of marking on the master charts the sales made by 50 G. E. Hotpoint electric range distributors.

NEW OIL BURNER MODEL INTRODUCED BY WILLIAMS

BLOOMINGTON, Ill.—A new oil burner model has recently been announced by the Williams Oil-O-Matic Heating Corp.

The new model KB is an improved model K, and is said to feature compactness, symmetry of design, and an absence of fragile parts.

Advantages claimed for the new model, which will embody the general principles of the Williams type of oil burner are: the reduction of combustion operating noise; the reduction of mechanical operating noise; the reduction of current consumption; simplification of all parts of the burner; accessibility of all parts, and simplifying of the removal of burner assembly, metering pump, and other units; simplification of controls; the elimination of drive coupling; the use of low-voltage thermostat with two wires, permitting lower installation cost.

REVOLVING TRAY FOR GLASS CONTAINERS MARKETED

LOS ANGELES—A revolving tray, holding six glass containers which fit together as a unit, has been placed on the market by the Scurlock Kontanerette Corp. of Chicago, and is being distributed by the Refrigeration Service, Inc., of this city.

The Kontanerettes are made in two sizes, No. 1 having a 32-oz. capacity, and being 5½ in. high and 12¼ in. in diameter; and No. 2 having a 24-oz. capacity, and being 4⅜ in. high and 12¼ in. in diameter.

The tray revolves on steel ball-bearings. The containers are clear glass.

Doge Seeks Dealers For 'Bantam Bar'

DETROIT—District managers of the Doge Co. of Minneapolis, furniture manufacturer, are launching operations to secure dealers for one of the company's newest products, the Bantam Bar, a portable cabinet-bar for use in serving beverages in homes or offices. One model of the bar uses Frigidaire equipment.

Some Doge representatives probably will choose to establish retail outlets devoted exclusively to the sale of this equipment, while many will seek to merchandise the bars through organizations already handling other equipment, according to M. E. Bishop of Detroit, district manager for Michigan, northern Ohio, and northern Indiana.

Until retail outlets have been established, Bantam bars will be sold by Doge Co. factory representatives located in 20 district offices throughout the country, says Bishop.

The new bars are 42 in. long, 40 in. high, and 22 in. deep, and are available in woods and finishes to match the home or office furnishings of the buyer.

Two models of the bar are obtainable—one equipped with an electric refrigeration system, and selling for $390; the other without refrigeration, priced at $135. At present, Frigidaire units are used in the refrigerated bars.

The bars contain bottle shelves, glass racks, spoon drawers, refuse containers, and towel hangers, and are mounted on swivel casters to facilitate their transfer from room to room. The top of the bar may be extended forward, six inches beyond the body of the bar, a footrail emerging at the bottom of the bar when the top is moved out. The top may be lengthened at the ends by attaching the extensions available.

The company is also manufacturing a bar similar in construction to the Bantam Bar, yet large enough for use in hotels and clubs. It is 5 ft. long, is mounted on 6-in. swivel wheels, and is equipped with large handles to be used in moving it from one room or floor to another.

BELLAIRE CO. ANNOUNCES BASKET OF 5 DISHES

BELLAIRE, O.—The "Baskette," a compact basket consisting of five porcelain enameled refrigerator dishes, is now being offered as "the refrigerator accessory which organizes the refrigerator," by the Bellaire Enamel Co. of this city.

The "baskette" itself, divided into compartments to hold the dishes and yet provide proper air spaces for circulation, is built of flat refrigerator shelf wire, heavily retinned, and with end handles for lifting. Overall measurements are 15½x11½ in., thereby being adaptable to a convenient position on any shelf.

Five covered dishes, finished in white porcelain enamel, provide containers for left-overs and the storing of miscellaneous foods.

The largest of these dishes measures 8x5x2¾ in. Next largest covered dish measures 7x5x2¾ in.

Oil Burners Should Be Sold By Major Home Appliance Dealers, Walsh Says

By Phil B. Redeker

DETROIT—Retailers who specialize in major home appliances are logical outlets for oil burners because oil burners are more often *sold to* a prospect than *purchased by* a homeowner of his own volition, states E. V. Walsh, general sales manager for the Timken Silent Automatic Co., manufacturer of oil burners.

Oil burners *can* and *should* be sold as a home appliance, says Walsh.

"The successful dealer in electric refrigeration, if he applies himself to the job of selling oil burners in a serious and intensive manner, should be a successful dealer in oil burners," Mr. Walsh declares. "However, he must be prepared to spend considerable effort in training his organization how to sell home heating appliances."

Ability to Sell

Walsh points out the fact that the ability to sell an appliance which retails at prices ranging from $400 to $800 is the primary requisite of a dealer who wants to get into the oil burner game. The necessary mechanical knowledge needed to estimate, install, and service oil burner jobs can be "bought" by hiring a good oil burner mechanic.

A "race" of such mechanics, who have a fair knowledge of home heating engineering and a thorough knowledge of oil burner service problems, has sprung up in the past 10 years, and a dealer generally has no difficulty in finding a member of this "race" for his organization, Walsh declares.

"A specialty merchandiser who wants to sell oil burners must be big enough to devote year 'round attention to the sale of such equipment," Walsh thinks.

Peak Burner Sales Months

Peak months for the sale of oil burners are August, September, and October, during which time about 50 per cent of the yearly volume on oil burners is sold.

The months of May, June, and July constitute the next best selling season, accounting for about 30 per cent of the oil burner sales volume.

There are very definite reasons for these oil burner "selling seasons," Walsh points out. Sale of oil burners reaches its high point in the early fall months when the first intimations of cold weather set the home owner to thinking about the heating problem, and force him to make a decision on the question of buying coal for another winter, or installing an oil burner.

Although there is no voluntary demand on the part of the consumer for oil burners during the summer months, this period has been made the second ranking quarter of the year with reference to volume of oil burner sales, because of the summer-terms payment plans devised by oil burner manufacturers.

Deferred Payments

A home owner may have an oil burner installed in June, making his down payment at the time the sale was closed. He can then wait three months before paying his first instalment, giving him ample time to arrange his financial schedule to meet the payments, and at the same time his heating equipment is set up and ready to meet the first cold days of autumn.

If the oil burner dealer fails to sell a prospect before the latter buys the first portion of his winter's coal, the possibility of closing the prospect during the winter months is rather remote.

However, few people stock their bins with a full winter's supply of coal as they once did, and this fact gives the oil burner salesman some opportunity to sell his product in the middle of winter.

These facts concerning the selling season make it apparent that oil burner merchandising must be planned and promoted the year 'round, and that the oil burner is not an appliance which can be picked up by refrigeration dealers for a few months trial during the winter months, in the hope that enough sales can be made to take up the slack in refrigeration sales during the period of cold weather, believes Walsh.

The service-installation department in the oil burner dealer's organization is kept active the entire year due to the nature of the business. In the summer and fall the mechanic's time will be occupied by installing oil burners; in winter he will be kept busy answering service calls.

Walsh believes that the electric refrigeration dealer who decides to sell oil burners will find it better to hire or train one service man exclusively for oil burner work, rather than to try to convert his refrigeration service department into a part-time oil burner service and installation crew.

"Convenience, comfort, cleanliness, Walsh. "However, I think we are now and even temperatures are the big selling arguments for oil burners," states ready to tell an economy story to our prospects.

Cost Survey of Users

"We recently completed a survey, in which we asked our users to set down the comparative cost of heating their homes with oil, which they are using at present, and with coal, which they used before their oil burner was installed.

"In this survey 61.4 per cent of users replying stated that oil costs less than coal, 32.6 per cent declared that there was no appreciable difference in the cost, while 15 per cent said that oil heat was more expensive than coal.

"This means that 85 per cent of our users are ready to tell their friends that oil heat is no more expensive than coal."

A list of 28,997 users, selected to make the survey representative of all parts of the country, was circularized for information on the subject of costs, and 5,847 replies were received.

Interesting is the fact that some of the most favorable returns, from the standpoint of oil heat, were received from states in which the coldest weather prevails.

In Connecticut, for instances, 86.3 per cent of the users replying averred that oil was cheaper, while 11 per cent stated that there was no appreciable difference in cost, leaving but 2.7 per cent of the Connecticut users replying finding that oil was more expensive than coal.

Replies from New York state demonstrated that 66.4 per cent of the users found oil cost less than coal, 19.5 per cent found no appreciable difference, and 8.4 per cent declared that oil heat was somewhat more expensive.

Selective Selling

Walsh believes that oil burner selling is still selective in that only home owners with incomes of $2,500 or more can be considered as prospects worth working. Very few oil burners find their way into rental dwellings under present conditions, and the laborer with an income of less than $2,500 a year, even if he does own his own home, cannot be considered too good a prospect for a home appliance priced at $400 and up.

Of considerable encouragement to the oil burner manufacturer, Walsh says, is the fact that an increasing number of oil burner installations are being made in homes of individuals with incomes in the $2,500 to $4,000 a year class.

As the greatest percentage of oil burner sales in the past have been made to home owners with yearly incomes of $6,000 or more, a great potential market in the lower income brackets, scarcely touched, awaits the active and experienced merchandiser of home appliances.

New Westinghouse Appliances

Two home appliances illustrated in the photograph are the Westinghouse china percolator and waffle iron. The urn has a capacity of seven cups.

ELECTRIC REFRIGERATION NEWS

The Business Newspaper of the Refrigeration Industry

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Companion Merchandise

PROHIBITION is a smoke-screen. It is being used, apparently successfully, by Democrats and Republicans alike to soft-pedal the real issue of the day—the restoration of jobs and profits. Likewise, it may be found that the hubbub over prices in the electric refrigeration industry is obscuring the most important subject for discussion now facing the industry: the maintenance of business by the addition of other products to sell. Today electric refrigeration distributors and dealers seem to be definitely and acutely in need of companion merchandise.

Distributors and dealers of electric refrigerators are more vitally interested in new methods of increasing dollar volume now than they have ever been before in the history of the industry. Much lower selling prices, smaller gross profits per unit sale, greatly augmented numbers of competitors, and in some cases, fewer unit sales, have materially reduced the dollar volume of most refrigeration sales organizations. And all of them are impatient to do something about it.

Changing Times Bring New Attitude

At first, leaders in the electric refrigeration industry insisted that franchises be granted only to distributors and key dealers who were willing to handle one specialty product alone. Perhaps that was wise. Until the industry could shed its swaddling clothes and stand on its own feet, it was better that refrigeration dealers fight to establish the business on a solid foundation. Moreover, there weren't so many companies in the field then, everybody from manufacturer to salesmen had less competition, and margins were greater.

Today purchasing power has been curtailed sharply by the economic situation. Competition has increased as fast as prices have decreased. And, with well-trained and highly effective sales organizations champing at the bit, refrigeration dealers and distributors are looking around for some means of increasing their volumes, building up the seasonal valleys in their sales curves, spreading their overhead out over a greater breadth, maintaining their crack house-to-house crews, and building profits.

Question of Survival Uppermost

It is no longer a question merely of adding lines of companion merchandise to help straighten out a peak-and-valley seasonal sales curve. Right now the pressing problem for many dealers and some distributors is to stay in business. And numbers of these men are coming to the conclusion that in times of adversity they must have diversity.

The substantial rises in the electric refrigeration industry's sales curve throughout the depression should be ample evidence that distributors, dealers, and salesmen of this industry are aggressive, persistent, skillful, and thoroughly trained in modern methods of specialty selling. They represent the highest degree of perfection in the use of specialty selling methods the nation has ever produced. But present-day conditions demand that they have *more products to sell.*

Three Categories of Appliances

What lines should they add? Undoubtedly the products most susceptible to their manner of promotion are specialty and semi-specialty appliances for the home. Room coolers, oil burners, coal stokers, electric ranges, all-electric kitchens, laundry equipment, electric sewing machines, and home entertainment devices can all be sold successfully by electric refrigeration organizations. And some are doing well with traffic appliances, the "chewing gum items" of the business, such as lamps, irons, toasters, percolators, and the like.

Strictly specialty appliances are those with low saturation and comparatively high retail price, which require promotional education, house-to-house canvassing, and demonstration. Usually it is advisable for a specialty appliance outlet to be an exclusive operation.

Semi-specialty appliances have once been specialties, but now have greater public acceptance, lower unit values, and are beginning to be sold more and more directly from displays. They are still sold chiefly by doorbell ringing, but have a higher saturation than the strictly specialty appliances. Both types employ the same sales technique, but semi-specialties do not usually justify an exclusive merchandising set-up.

Traffic items have relatively high saturation and unit costs too low to permit specialty promotion methods. Sales of this type of appliance depend largely on exposure.

Electric refrigerators seem to be tending toward the semi-specialty class; hence it is possible they no longer justify an exclusive operation. Moreover, since their volume is likely to depend more and more upon display at point of sale, and spot exposure, the addition of traffic items to a dealer's store should enlarge his opportunities for displaying and selling refrigerators to greater numbers of prospects.

What Lines Best Suited?

Which particular home appliances shall an electric refrigeration distributor or dealer subjoin to reinforce his business? Thus far the companion lines most popular with these men have been oil burners and electric ranges. Interest in air-conditioning equipment has run high, but most distributors and dealers seem to be a bit wary of such devices, and are inclined to wait until they have learned more about particular makes and types of equipment before seeking franchises.

It has been estimated that in 1931 sales of different household appliances totalled the following amounts: electric refrigerators, $248,970,000; washing machines, $69,020,000; oil burners, $42,000,000; vacuum cleaners, $34,332,000; electric ranges, $18,975,000; ironers, $6,720,000; and dishwashers, $2,400,000.

One large manufacturer predicts that in the three fiscal years beginning Aug. 1, 1932, these dollar volumes will be recorded in the sale of the following appliances: washing machines, $160,000,000; vacuum cleaners, $100,200,000; ironers, $68,000,000; sewing machines, $63,700,000. These figures are based on the assumption that depression standards will still be in force throughout that period.

At the end of 1931 the estimated saturation of vacuum cleaners was 45.4%; of washing machines, 40.8%; of radio receivers, 40.3%; of electric sewing machines, 16%; of electric ranges, 5.3%; of electric ironers, 3.5%; of domestic oil burners, 2.1%; and of dishwashers, 0.6%. Plenty of room, it would appear, can be had in any of these fields which a distributor or dealer may choose to enter.

Timely Opportunity for Manufacturers

Refrigeration specialty sales organizations have learned how to sell specialty products to homes better than any other group of distributing concerns in the country, and have added the most recent and most studied chapters to the book of specialty salesmanship.

Forward-looking manufacturers of other products, and their chief sales executives, have been casting longing eyes at electric refrigeration merchandisers for some time. Occasionally they have made sporadic attempts to get distribution through this type of outlet. But today, as never before, they have an opportunity to get their message across to electric refrigeration distributors and dealers.

For the most important issue in the electric refrigeration industry today is: "How can we maintain our business on the same standards to which we have become accustomed?" And the most logical answer seems to be the acquisition of non-conflicting lines of companion products.

Letters from Readers

Opportune

Norge Corp.
Detroit
Sept. 17, 1932.

Editor:

Before writing you, I have taken the time to re-read with due deliberation your editorial on the front page of the Sept. 7 issue of your good paper.

I have re-read this purposely inasmuch as I did not care to depend upon my favorable recollection of the article, and after re-reading it, I am even more impressed with the message that you have sent out at the most opportune time. It strikes me that a continuation of this type of editorial *on the front page* is something that you should not fail in.

There are some of us who turn to the editorial page of any paper as a matter of course to obtain the pertinent thoughts of the day; however, there are many more of us who never bother with the editorial page. Consequently the message contained in the center of the front page (especially when the message is so timely and so straight from the shoulder as that of Sept. 7) is to my mind the ideal manner of putting that message over to the industry as a whole.

I cannot resist the temptation to dwell on the subject of this opportune article of yours, as I am more or less of a fanatic on the subject of reputable merchandising and fair dealing as opposed to products of doubtful antecedents and quality, and certainly this industry needs right now—as it never needed it before—a solid front on the part of its outstanding manufacturers, its reputable dealers and its sincere salesmen to oppose the cheaper element that is creeping in.

JAMES A. STERLING,
Sales promotion manager.

Real Service

General Electric Co.
Electric Refrigeration Dept.
Cleveland
Sept. 22, 1932.

Editor:

I hardly need tell you that I got a real kick out of the front-page editorial in your Sept. 7 issue. It was great.

I believe your paper can perform a valuable and much-needed service for the refrigeration industry, the purchasers who are supporting it and, especially, prospective dealers and people who contemplate investing or otherwise becoming closely affiliated with the industry, by pointing out the necessity for adherence to quality standards, sound merchandising, conservative financial policies and the general practices that are characteristic of any substantial business.

A bargain is only such when you get standard quality for less than the normal price. In the refrigeration field the word is rapidly coming to mean an expensive purchase sold according to the most advanced technique of pawnshop merchandising.

Someone has estimated that 12,000 new dealers were attracted to the field this year. Before the year has ended, many of these dealers who have been handling opportunist products will have had their fill of the refrigeration business and their state of mind will be such as to make them anything but boosters. In fact, they will represent a potential army of reactionaries as strong as the sales force of any single manufacturer. We could multiply this number several times to obtain an approximate estimate of the number of purchasers who may be searching for someone to lend a sympathetic ear to their service problems.

Buy why carry this further; the liability to the industry is evident. Let's have more material of the same tone in your paper.

M. F. MAHONY,
Manager, merchandising division.

Excellent

General Electric Co.
Electric Refrigeration Department
120 Broadway, New York City
Sept. 28, 1932.

Editor:

I have read with much regard your editorial in the September 7 issue of ELECTRIC REFRIGERATION NEWS. It is excellent.

Several of my distributors have quoted this verbatim to their dealers.

A series of such would be beneficial to our many outlets who constantly feel there is more money to be made in the greener pastures.

FRED HARVEY.

Good Ammunition

L. C. Wiswell Co.
Kelvinator & Leonard Distributor
822 South Michigan Ave., Chicago
Sept. 20, 1932.

Editor:

Having read with keen interest your editorials in the Sept. 7 issue, I want to tell you that in my judgment, they are not only timely, but hit the nail right on the head.

You have well said that up to a year ago one could advise the prospective purchaser of a refrigerator, that in making a selection they obtain value received; but not so today, unless it would be a refrigerator manufactured by what I might term one of the quality or old-style manufacturers. The refrigerator is one article that does not lend itself to an assembled manufacture, and I mean by this, the various parts that go into the manufacture of a refrigerator cannot be purchased from manufacturers of Heinz 57 Varieties, to be assembled into one unit.

The confines of this letter will not permit my full expression upon the excellency of your editorial; however I want you to know that if you will keep shooting the same kind of ammunition to the trade, you will be doing a real service.

L. C. WISWELL
President.

Pressing Need

Electric and Radio Association
of Kansas City
Kansas City, Mo.
Sept. 17, 1932

Editor:

It is most gratifying to learn from your editorial in ELECTRIC REFRIGERATION NEWS for Sept. 14 that you believe a standard of performance is one of the most pressing needs in the electric refrigeration industry, and it is further gratifying to see that you are attacking this problem so aggressively as indicated by the splendid hard-hitting editorials of your issues of Aug. 31, Sept. 7 and Sept. 14.

I should like very much indeed to have our Kansas City electric refrigeration outlets thoroughly posted on the support you are giving this matter of performance. Many of them, I know, are subscribers to ELECTRIC REFRIGERATION NEWS and, in my opinion, those who are not should certainly subscribe without further delay.

You are rendering a splendid service and here's hoping you can keep it up until something constructive is evolved. I, too, think the manufacturers could help in this a great deal if, in their national advertising, they would talk less technical features and hammer away more on the importance of satisfactory performance.

G. W. WESTON,
Secretary-manager.

Guarantees

Cayce-Yost Co., Inc.
Hopkinsville, Ky.
Sept. 17, 1932.

Editor:

We have read your card, "What's The News" and note what you say about long guarantees and present service plans are under scrutiny.

We want to express our opinion as to the three-year long guarantee, which has cost the dealer more money than their profit.

In many cases the customer has been misled as to the guarantee. We favor the 90-day guarantee to dealer and manufacturer.

Dealers selling refrigerators from $100 to $200 on the three-year guarantee can not make any profit, if they carry out their guarantee, and any legitimate dealer must live up to the guarantee.

Please let us urge that you use your influence to bring about a reasonable guarantee period, and thus enable the dealer to stay in business.

The three-year guarantee on any refrigerator made under any construction that we know of will cost the dealer considerable more money for which he can not get returns.

We would suggest and think it would not be unwise to send out a questionnaire to all dealers, asking what they think of the present guarantee to dealers. We think it would be helpful to all concerned.

K. O. CAYCE,
President.

Much to the Point

O'Keefe & Merritt Co.
Los Angeles
Sept. 23, 1932.

Editor:

We enjoyed very much reading the front-page editorial carried in the Sept. 7 issue of ELECTRIC REFRIGERATION NEWS.

We feel that same was very much to the point and outlines dealers' conditions today. We have made good use of it.

L. G. MUNCHHOF,
Sales manager.

Helpful

Frigidaire Sales Corp.
39 West 45th St., New York City
Sept. 23, 1932.

Editor:

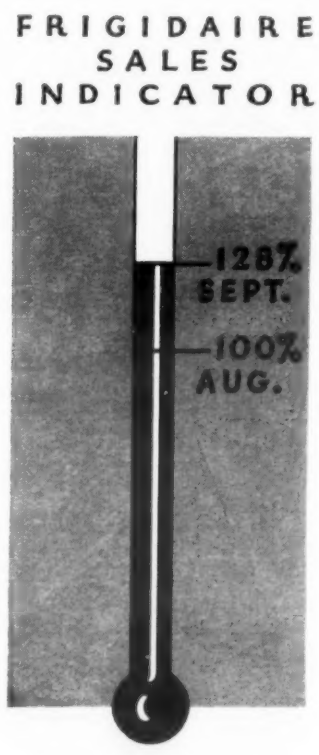
I think that all of us in the Frigidaire organization agree that your editorial on the front page of the Sept. 7 NEWS was splendid and should be very helpful indeed to the industry.

I am sure that editorials of this type do and will carry considerable weight.

C. M. EAKIN,
New York general manager.

SALES UP 28%

Frigidaire's Business Improvement Program brings increasing profits



September household sales up 28% over August—*in dollars and cents!* 43 per cent in units! That's the result of Frigidaire's Business Improvement Program . . . a result that is all the more gratifying when you consider that September sales are normally 10% *less* than August.

Here are the first four steps in Frigidaire's *Business Improvement Program*—that are *Bringing Increasing Profits* to Frigidaire Dealers:

1. New low price—$112.00 (plus freight) Delivered, Installed and Federal Tax Paid—the lowest price at which a *Genuine** Frigidaire has ever been sold. **2.** A revolutionary development—STATAFLEX—which gives ¼ more food space in the same sized cabinet. **3.** Half-million dollar advertising campaign—concentrated in 90 days' time. **4.** Nation-wide Radio Contest, offering a Cadillac and four other General Motors cars as grand prizes—and 40 other prizes.

The success of Frigidaire's Business Improvement Program proves that Good Business is back for those who back Good Business . . . Frigidaire Corporation, Subsidiary of General Motors Corporation, Dayton, Ohio.

• • •

* *Warning:* A cheap, underpowered and poorly constructed refrigerator at any price is expensive for you to sell. Customer satisfaction—your greatest asset—is assured with this genuine Frigidaire. Nothing has been "cheapened"—it is the same Super-Powered, two cylinder Frigidaire made and guaranteed by Frigidaire Corporation, a subsidiary of General Motors.

FRIGIDAIRE

A General Motors Value

LITTLE STORIES OF INTERESTING PEOPLE IN THE REFRIGERATION INDUSTRY

THE EXPANSION VALVE

LITTLE STORIES OF INTERESTING IDEAS IN THE REFRIGERATION INDUSTRY

By **George F. Taubeneck**

Master Retail Plan

Ed Terhune, dynamic, fast-thinking, human spark plug who is proprietor and sales manager of the Appliance Engineering Corp., Boston, is working on a new idea.

And when "Terry" starts to put a new idea into effect, it's practically done, for he works so fast he makes factory officials dizzy.

"Terry" is distributor for Copeland refrigerators, Estate electric ranges, and Wayne oil burners in Maine, New Hampshire, Vermont, Rhode Island, and eastern Massachusetts. Last year he was pointed out as Copeland's biggest distributor. Likewise, this year.

Within a 30-mile radius of Boston, "Terry" is operating a master retail plan which is a doozy. He has a gross or so of dealers, for whom he does the *financing, installation, servicing, display, advertising* and some of the *selling.*

These dealers get 40 per cent on every unit they are instrumental in selling. Out of this they are charged back for financing, installation and service.

It is distinctly understood that any time a dealer wants to handle all or any one of these functions, he is at liberty to do so. Almost all of them, however, are glad indeed to be rid of these troublesome operations.

All over the nation this year, inability to finance time-payment paper has bottle-necked electric refrigeration sales. Terhune, with the cooperation of the C.I.T. Corp., has found a way out.

Appliance Engineering Corp. now has about 400 dealers. By spring Mr. Terhune estimates that there will be at least 700 on the roll, because he intends to extend this master retail plan throughout New England.

If a dealer with an exclusive territory is doing a good job, he will be let alone. But in unproductive territory Terhune expects to plaster dealers all over the map. Again, should any of these new dealers turn out to be humdingers, exclusive territories can be arranged.

New dealers operating under this plan simply sign a contract, get a handsome, gilt-edge dealer certificate to frame, and go to work on prospects.

And if they wish, "Terry" will furnish them with *trained* commission salesmen (junior supervisors)! Each dealer is to handle all three appliances. The scheme seems to be working in great style.

* * *

Enter the Bull

Readers of this kolm may remember that every time the above-mentioned Terhune and the Valve get together, one or the other has been "taken for a ride."

It all started about two years ago when your correspondent typed some caustic realism anent the city of Boston. Ergo, the loyal and righteously incensed Dr. Terhune dared us to come back and be "taken for a ride."

We did, and rode right into the hands of the Boston bulls (not dogs, but tough Irish policemen).

Since then there have been a number of jolly and arresting incidents with fixed coppers.

Last week the Valve spoke at a dinner Mr. Terhune gave his dealers and field organization. Innocently enough, we aimed our talk in the general direction of a WNAC (Yankee network) microphone, told our mild little yarns, and settled down comfortably to listen to the sage running comment of Bill McCabe of the Commercial Investment Trust Corp.

A little gasp and a sudden, ominous quiet made us look furtively over our shoulder. Standing there, unsmiling, hat on head, tapping Terhune on the shoulder, was a grim fellow who was obviously a plain-clothes dick.

Terhune made a great show of indignance over this "unwarranted intrusion" into a private party. But the dick was unrelenting. He arrested yours truly for using obscene language over the radio!

And there was great glee in the Terhune-Lyon camp.

How these chaps have been able to get such a good stand-in with the Boston bulls and dicks we've never been able to dope out.

* * *

Hyde-ing the Facts

All summer the Valve has been carrying on a spasmodic correspondence with G. C. Hyde, president and general manager of the Southern Ice and Utilities Co. of Dallas, Tex.

Apparently Mr. Hyde's sole purpose is to convince us here at ELECTRIC REFRIGERATION NEWS that we are on the wrong track altogether, and that we are promoting an "obsolete system of refrigeration," for he insists that none of his letters be published.

Chief cause for Mr. Hyde's dudgeon seems to be the central stations, against whom he has cast many baleful paragraphs (as if the Valve could do anything about it) because his ice plants augment the income of the central stations, which show gross ingratitude by promoting the sale of electric refrigerators, and offering users of such lower rates (he claims) than he pays.

Also he maintains that electric refrigerators won't hold the temperatures that they advertise (and sends blueprints of tests which purport to prove his point), and that their relative humidity is too low for proper food preservation.

At one time, he declares, he had a nationally known electric refrigerator in his home for three months. During that time, he says, he "hauled more ice than during 16 years' experience in using an ice refrigerator, and had more actual food spoilage." We might add the extenuating remark that this sentence occurred near the end of a three-page letter, after he had worked up quite a lather.

Among the do-not-print documents which he has sent are some photographs of workmen tearing up electric refrigerators and converting them into iceboxes. According to Mr. Hyde, these electric refrigerators were unsatisfactory, and the purchasers have gone back to ice refrigeration.

Mr. Hyde firmly believes that the only reasons electric refrigerators have been sold are "the enormous amount of advertising, the unwarranted knocking of the ice industry and the misrepresentation of the rate structures."

All of these letters have been highly interesting, and we wish they could have been published. But Mr. Hyde says no, and that's that.

* * *

Bacterial Ice Cubes

Users of electric refrigeration in Dallas buy from $10 to $20 worth of ice annually, Mr. Hyde avers.

He assigns two reasons for this: (1) ice-making capacities of most electric refrigerators aren't adequate (he claims) in the Texas climate; (2) discolored ice cubes .

In connection with the latter reason, he writes:

"It has been repeatedly proved by bacterial analysis of the ice cubes taken from the refrigerators in family use that, in all probability, if an ice company delivered similar ice in appearance and bacteria content on the streets of the city, the State Board of Health would close them up.

"Tests have been made," he declares, "at several universities, such as Purdue and Columbia, on impurities of ice cubes, and by the Wessels Research Bureau, merchandising counselors, 501 North Greenfield Ave., Whittier, Calif."

Our own experience has taught us that there may be some truth in Mr. Hyde's exaggerations with regard to bacterial ice cubes. On a few scattered occasions we have found brown spirals in them. So we set out to learn why. And here is a reason:

When ice cubes are allowed to melt in the trays, and then refrozen—particularly if considerable time elapses between the two freezing states—a small plant of the algoid type has an opportunity to grow in the water.

This alga grows only in clean cold water. The pure cool water from ice is its ideal habitat. It will not grow in water which is dirty or warm.

If you look at them under a microscope, these brown spirals seem to be composed of innumerable little threads made of cells hooked end to end and containing a greenish brown pigment embedded in the cell structure.

Should discolored ice cubes appear, wash the tray with hot water containing a small amount of washing soda.

If troubled by impure ice cubes, it's a good idea to empty the trays before defrosting. Also you should check up on the freezing time of your unit. It may be underpowered.

* * *

Sensitive Ice Men and "Ethics"

Consistently throughout its history ELECTRIC REFRIGERATION NEWS has attempted to follow a policy which might be summed up vernacularly in the words, "lay off the ice men."

Leaders of the ice industry have been, on the whole, extremely sensitive to fancied or actual slights; and it has been the notion of the entire electric refrigeration industry, as well as the NEWS, that it would be the part of wisdom to refrain from prodding the ice men.

"Let sleeping dogs lie," has been the general idea in this regard. Editors of house organs for some of the leading electric refrigeration manufacturers have been instructed that the word "ice" and all of its verbal family were taboo.

Some two years ago, we understand, the Electric Refrigeration Bureau was halted on some of its plans and forced to change the tone and text of its national advertising program by vigorously protesting ice men.

At that time, we have been told, Bureau officials and the board of directors of the National Association of Ice Industries got together on some kind of a "working agreement."

It's our own private notion that the icemen have the electric refrigeration industry completely buffaloed; just as the department stores seem to have bluffed the utilities into relative submission on the question of electrical appliance merchandising.

This "ethics" business is something we've never been able to figure out. "Ethics" was one course we didn't take at school.

Codes, it has always seemed to us, are usually devices whereby one group can attain or maintain an advantage over another by outsmarting them during the course of diplomatic negotiations—precisely in the manner that the most famous babe-in-the-woods of recent international history, Woodrow Wilson, was outsmarted at Versailles by the cagey diplomats of continental Europe.

* * *

Ed Wynn? Huh-uh

This is not Ed Wynn. It is W. R. Marshall, Gibson sales promotion manager, in a cut-up mood.

In Which We Take It On the Chin

Recently ELECTRIC REFRIGERATION NEWS has been the target for some barbed shafts from the ice men.

Occasion for the first attack was the printing, in the March 2 issue, of an interview with R. D. Ford of Ford Brothers, Fullerton, Calif., Kelvinator and Majestic dealer.

Mr. Ford has obtained prospects from ice men, and told in this interview how he does it.

In the Aug. 9 issue of the NEWS we printed a bombastic letter *in re* this article from Walter F. Coxe, secretary of the Louisiana-Mississippi Ice Association of New Orleans. Mr. Coxe was formerly editor of *Refrigeration*, southern ice paper published under the direction of O. J. Willoughby of Atlanta.

Fumed Mr. Coxe:

"This very vicious and insidious article is an attempt to destroy public confidence in the ice industry and to break down the morale of ice industry employees, and is almost wholly untrue.

"The article is purported to be an interview with Mr. R. D. Ford of Ford Brothers, electric refrigerator dealers of Whittier, Calif. When it was called to our attention we communicated with Mr. M. H. Robbins of the Union Ice Co., San Francisco, Calif., former president of the National Association of Ice Industries, and through Mr. Robbins with Mr. L. C. Montgomery of the Whittier Ice & Cold Storage Co., Whittier, Calif., in an effort to verify some of the statements in the article. . .

"The continuous and ever-recurring transgressions against the ice industry will never cease until ice men begin a spirited advertising campaign to teach the public the virtues of ice refrigeration and build up for this industry a prestige which will not permit any nincompoop who comes along to attack a legitimate business and get his attacks published in what are supposed to be representative newspapers."

Shortly afterward came a polite inquiry from Garrit Lydecker, manager of the commercial department of the National Better Business Bureau, Inc., as to the source of the article, "because firms connected with the ice industry think it is unfair to them, and we want to discuss the situation in a constructive manner with whoever circulated it in the beginning."

Instead of following Mr. Coxe's scheme of communicating with everyone but the right man in order to get the facts, we wrote directly to Mr. Ford himself, who replied:

"The statements made in the article regarding our cooperation with ice men in our vicinity were entirely correct.

"My purpose in making these statements was only to bring out the idea of how the electric refrigerator dealer and the ice man may cooperate in bringing more business to both of them, and not in any way to reflect upon the ice man."

Not only are there instances on record of ice men and electric refrigeration dealers cooperating, we told the Better Business Bureau, but we have run across and reported several cases of ice manufacturers and dealers actually selling electric refrigerators.

And after all, is there any reason why the two industries should not cooperate? Both are selling a service: food preservation by means of refrigeration.

Yet it will always be difficult for the two industries to get together on the sale of refrigeration so long as one side carries a precarious chip on its shoulder and spends much of its time sniffing out and avenging fancied insults.

* * *

In Which We Hit the Canvas

Attack No. 2 was precipitated headlong by the publication in the July 20 edition of this kolm of these paragraphs:

"Some time ago in Cincinnati we talked with a young man who was then working for the National Association of Ice Industries.

"It was his job to help ice companies put on advertising and promotional campaigns (you know—'the well-informed choose ice refrigeration').

"He didn't seem to get much response from the ice men. Some of them, he said, allow themselves just about five years more in the ice business."

It wasn't long before O. J. Willoughby, publisher of *Refrigeration*, who is a helluva goodfellow and a dandy friend with whom we always get together convivially when we go to Atlanta, wrote us a short note asking if we could give him the name of the lad who made the statement quoted above.

Although we could see breakers ahead, we thought it only fair to our informer to withhold his name, in order to protect his job. We had known him in college, he had just been married, and is a likeable young man.

With that in mind, we did not say in the story that he told us his salary was paid by the advertising agency which handled the National Association of Ice Industries Account, for it added little to the story, and would surely have identified him to the wrathful N. A. I. I. men.

So the August *Refrigeration* carried the paragraphs from the Valve quoted above followed by a letter from Robert McKnight, of the N. A. I. I., who wrote:

"The facts are as follows: No representative of the National recalls ever having met Mr. Taubeneck. No representative of the National has been in Cincinnati since March 5, 1930.

"No representative of the National expressed the opinions stated in the paragraphs and they are neither our opinions now nor ever have been."

* * *

In Which We Rise at Count of Nine

From Leslie C. Smith, secretary of the N. A. I. I. and one of the most vitriolic letter-writers we've ever known, came a letter to Mr. Cockrell flaying the violation of ethics on the part of "his subordinate" (the Valve)—following the apparently customary ice man practice of going to someone that might influence the individual who makes statements they don't like, instead of to the individual himself.

Asserted Mr. Smith:

"No representative or employee of this association has been in the city of Cincinnati for more than a year. With equal emphasis I assert that no employee or agent in any capacity connected with this association has ever made the statement attributed to such a representative in this issue of July 20."

A short time later we wrote Mr. Smith and asked for the name of the advertising agency which has been handling the N. A. I. I. direct-mail promotional activities during 1932. From Mr. McKnight came this reply:

"Our direct-mail agency is the Dosch-Kircher Organization, 11 North Canal St., Chicago . . . This agency continues to serve us well."

Last week Jack Schaefer was in Chicago, and contacted the Dosch-Kircher Organization. He found that the young man in question is no longer with that firm. So now we can release his name.

It is William O'Dell.

He made the statements quoted earlier in this story at dinner in the main dining room of the Hotel Gibson, Cincinnati, on the evening of January 14, 1932, to Schaefer and the Valve.

Schaef and I had visited the Crosley Radio Corp. and the Kroger Grocery & Baking Co. in Cincinnati that day, and were listening to the music of Kay Kayser ("that man from the South") whilst waiting to be served, when we spied old friend Bill, and got together.

(Business of dusting off one's hands and sighing, "So that's that.")

* * *

Latest Attacks

Most recent lambasting and protesting on supposed injustices done the ice men is reported in September *Refrigeration* as follows:

"Ice companies in all parts of the country were quick to protest the advertisement of the Commercial Credit Co., Baltimore, Md., headed 'Mop Up the Dollars, Then Pour Them in the Sink,' which appeared in *The Literary Digest* and *The Wall Street Journal*. The National Association of Ice Industries quickly responded to the protests by writing both of the magazines and the Commercial Credit Company itself.

"The protest to the Credit Company stressed the fact that greater and greater numbers of ice companies are becoming good prospects for commercial credit in the sales of domestic and commercial refrigerators and ice air-conditioning apparatus; that in order to win back the good-will of ice companies another advertisement should be run in the same magazines stressing the splendid service that is more or less uniform among ice companies today, and of the fact that there is no need for 'mopping up the dollars' with a modern refrigerator.

"The Commercial Credit Company replied that it had no motive of being unfair to the ice industry; that it merely intended to promote thinking in the interest of stimulating sales; and that it would be glad to consider such an advertisement as suggested, but it could not publish it in the immediate future due to its schedules being prepared considerably in advance.

"In reply to the protest sent *The Literary Digest*, this paper stated that it, too, had received a great many letters, referring to the advertisement, that had not only been informative, but had voiced a rightful protest; that it had made a memorandum to make definite proof of its interest in the ice industry at some future time.

"The protest to *The Wall Street Journal* stressed the fact that it had readers who were investors in ice companies and ice refrigerator company securities, and that the advertisement presented an entirely erroneous and unfair picture of the modern ice industry, and expressed the hope that the paper would not again accept such copy.

"The reply was along the lines that it depended upon the point of view as to whether or not the advertisement was unethical; that it could see no compelling reason why any newspaper should censor the copy as published, and expressed the hope that some day the ice industry would tell its great story somewhat along lines similar to the electrical refrigerating industry with paid advertising in the newspapers of the country."

* * *

Prosperity Note

For the past two years the Valve—who travels a helluva lot—has disdained making Pullman reservations. On numerous occasions we have been the sole occupant of a Pullman car. Rarely have the cars been half full.

But on our last two trips we have come very nearly being forced to spend the night in the smoking compartment with George and the shoes. For on one occasion only one berth was left when we arrived at the station, and on the other we were saved only by a cancellation of a reservation!

What this means, we don't know. But we suspect that B. C. Forbes would herald it as a bugle call for prosperity.

Prof. Elder Tells Effect of Advertising Over Radio On Consumer Demand

BOSTON—Basing his address upon facts secured from a series of studies made to determine the effectiveness of radio advertising, Robert F. Elder, assistant professor of marketing at Massachusetts Institute of Technology, recently told the Boston Conference on Retail Distribution that such studies are of value not only because they indicate that radio advertising is effective, but because they offer a workable plan for determining quantitatively the extent to which consumer demand is influenced by one particular advertising medium.

Professor Elder first told conference attendants that, according to an estimate of July 1, 1932, 56.7 per cent of all American homes are equipped with radios, that approximately 70 per cent of these sets are tuned in each day, and that the average use of a set is four hours per day.

Study of Boston Users

A study made of Boston radio users in April and May of 1930 showed that radio-advertised brands of merchandise showed a striking gain in popularity over nonradio-advertised brands, as the listening times of various classified groups of radio users increased.

Second study was conducted in the spring of 1931 on a much broader scale, said the professor, through support of the Columbia Broadcasting System. Ten cities throughout the country were used and 10,000 questionnaires were mailed to radio users in each city. More than 14,000 replies were received from users.

Larger Percentage of Users

"In each case, the radio-advertised brands of a product were used in a larger proportion of the radio homes than of the homes without radios," Professor Elder stated.

"In the case of Gold Medal flour, a consistent and effective user of radio, the degree of use in radio homes was 22 per cent greater than in homes without radios.

"With Lucky Strike cigarettes, it was 14.6 per cent greater; with Palmolive soap, 10.8 per cent, and with Robert Burns cigars, 25 per cent. Conversely, those brands which were not advertised by radio were used in a smaller percentage of radio homes than of homes without radio sets."

New Customers Gained

In terms of actual numbers of users, rather than of percentages, it was possible to show that new customers gained by radio broadcasts had been diverted from other brands not using this medium, he said.

In most cases, radio made heavier inroads on the popularity of local brands, or brands not heavily advertised, than it made at the expense of strongly nationally advertised articles.

Many Cities Used

"Use of a number of cities in this survey made possible another interesting, even if not surprising, conclusion," Professor Elder continued. "Certain products were advertised in some cities and not in others. Their proportion of use in radio homes was greater only in those cities where their programs were heard.

"Squibb's toothpaste, for instance, showed a 23.6 per cent greater proportion of users in radio homes than in nonradio homes in the two cities where local programs were used to advertise it; in the other eight cities its use in radio homes was 4.3 per cent less than in nonradio homes."

Survey Repeated in 1932

In June, 1932, the 10-city survey was repeated, according to the speaker.

Of this study, Professor Elder said: "The value of continuity of effort appears to be well demonstrated by the fact that Gold Medal flour showed a 35.3 per cent greater degree of use in radio homes this year, as compared with 22 per cent last year.

Barbasol's proportion of users in radio homes this year was 127.3 per cent greater than its proportion of users in homes without radio; last year the figure was 83 per cent."

Study of Cigarettes

He continued, "Probably the most significant demonstration of the effectiveness of radio in changing consumer demand is seen in the study of the four leading cigarette brands. Cigarettes offer a good measure of advertising effectiveness.

There are only four brands of importance, and each has a large enough share of the market to afford a good degree of statistical accuracy.

All sell at the same standard price through the same outlets. They are bought frequently, and so constitute a sensitive index of consumer reaction to advertising appeals. In 1931, Lucky Strikes, on the air since the fall of 1928, showed a 14.6 per cent greater proportion of users in radio homes.

Old Gold, a sporadic user of small amounts of time, showed 7.3 per cent greater use in radio homes (less important in terms of actual users because of this brand's smaller share of the cigarette market).

Camel, with its old orchestra program, showed a 3.8 per cent gain in users in radio homes where it was on the air," said Professor Elder. "Chesterfield, never on the air, was less popular by 5.9 per cent in radio homes than in the homes without radios."

Shortly after the 1931 survey, Camel sponsored the Morton Downey-Tony Wons-Jaques Renard program. It proved highly popular, and after a year of broadcasting the proportion of Camel users was 27.3 per cent greater in radio homes than in nonradio homes, according to the speaker.

Chesterfield Sales Gain

Later, Chesterfield put on a series of programs featuring popular stars, and after six months of this Chesterfield's proportion of users in radio homes was 35.8 per cent greater than in homes without radios.

This vigorous competition cut down the dominance of Lucky Strikes in the radio market, reducing its increment of users in radio homes to 7.1 per cent.

Old Gold, having used no time on the air for over a year, had apparently lost the effect of its previous broadcasts and recorded in 1932 a smaller proportion of users in radio homes than in nonradio homes.

"The results of these studies yield much food for thought," Professor Elder commented. "They indicate that radio is an effective advertising medium, and their greatest significance, it seems to me, is that we have a way to determine quantitatively the extent to which consumer demand is influenced by one particular advertising medium.

Other Mediums

"Radio in the past few years has offered a unique opportunity for the development of the technique used in these investigations. I am quite sure that if we could work out suitable methods of measurement and properly isolate the various elements, we should find other advertising media accomplishing comparable results.

"This, I think, is one of the biggest jobs we have to do; to find out what makes people buy as they do; to know, not to guess, how a dollar spent here compares in productivity with a dollar spent there.

"We have a long way to go before we shall be as efficient in our advertising as we are in most of our other business activities," he concluded.

Virginia Dealers Meet In Fall Convention

NORFOLK, Va.—One hundred fifty members of the sales organization of R. F. Trant, Inc., Frigidaire distributor for the Norfolk district, recently attended the annual fall convention of the district at Ocean View.

R. F. Trant made the opening address at the combined business and recreational gathering. J. J. Nance, manager, sales planning division; J. L. Conover, manager, east central region; R. B. Ambrose, retail commercial manager, and W. S. Small, head of the management service division, all of Frigidaire headquarters in Dayton, were guest speakers.

Walter N. Mason, sales manager of the Trant organization, presided over the meeting. J. M. Stockley, commercial sales manager; H. W. Butt, sales promotion manager for the district, and Archie M. Gathright, Frigidaire dealer at Richmond, Va., also spoke.

A playlet based on "Old Man Depression" was one of the features. "O.M.D." was promptly shot, put on an operating table where all his bad points were taken from him, given some good points, an injection of optimism, and turned out a new man.

KANSAS DISTRIBUTOR HOST AT 'EXTRA POWER PARTY'

KANSAS CITY, Mo.—At an "Extra Power Party" for Norge salesmen who had sold five or more Norge units during the Norge summer sales campaign, which began July 11 and ended Aug. 27, Moser & Suor, Inc., distributor of Norge refrigerators for Kansas and the western half of Missouri, announced that Paul Schwerdtfeger of Newman's Department Store, Joplin, Mo., was winner in this territory of the first prize in the contest.

The party consisted of a sightseeing tour around the city, followed by luncheon at the Aladdin Hotel. In the afternoon, the star salesmen attended Ringling Bros. & Barnum & Bailey circus. In the evening, a dinner dance was given at the Aladdin Hotel at which Schwerdtfeger was awarded a set of Kroflite golf clubs, first prize in the contest.

Second prize, a Westinghouse four-piece urn set, was awarded to W. E. Pennell of the Pennell Jewelry Co., Trenton, Mo.

An honorary third prize was presented to Howard Middleton of the Middleton Electric Co.

DRYDEN NAMED HEAD OF REX COLE DIVISION

NEW YORK CITY—Nathaniel C. Dryden, former sales director of Bond Street retail division, has been promoted to head the Long Island City division of Rex Cole, Inc., General Electric refrigerator distributor here. Dryden succeeds William J. Heggie, who has taken charge of the newly acquired home laundry equipment department of Rex Cole, Inc.

Adrian Black, formerly associated with William F. Bishop in the showroom division, has become sales director at Bond Street.

Dryden has been with the Rex Cole organization since the pioneering days in April, 1926. He started out as a retail salesman, six months later becoming sales director. In 1928 he took charge of Bond Street.

Black joined Rex Cole, Inc., as a retail salesman in April, 1930. He first worked in the Flatbush section of Brooklyn, under the direction of Robert G. Williams. In July of that same year, he went to the floor of the New York and Queens Electric Light and Power Co. at Jamaica, as a member of the showroom division under William F. Bishop.

Later he was appointed contact man during the "president's plan campaign" and spent most of his time at the Brooklyn Edison Co., Inc. At the conclusion of the campaign, he became assistant to Bishop in the showroom division.

100 FRIGIDAIRE SALESMEN GUESTS ON RIVER VOYAGE

LOUISVILLE, Ky.—More than 100 Frigidaire dealers and salesmen from the Dayton district, comprising parts of Ohio, Indiana, Tennessee and Kentucky spent a day at Rose Island, near this city, recently.

The party left Cincinnati the evening before on the steamer *Tom Greene*, for a "down the river jamboree," reaching the island the next morning.

Roy E. Smithson, district manager, arranged the outing as a reward for dealers and salesmen who made high sales records from Aug. 1 to Sept. 10.

Immediately after the steamship left Cincinnati, the following members of the sales organization were installed as honorary officers for the cruise: O. W. Scott, leading salesman, Zanesville, Ohio, captain; G. A. Wilking, leading dealer, Zanesville, Ohio, first mate; Paul J Barnaby, leading supervisor, Louisville, Ky., chief engineer; J. T. Alexander, Jr., leading salesman, Meadsville, Ky., second engineer, and L. E. Grubbs, leading district representative, second mate.

Factory officials making the trip to Rose Island were Frank Pierce, sales manager; E. D. Doty, advertising manager; and J. L. Conover, regional manager.

At the conclusion of the day's festivities, the party again boarded the *Tom Greene*, and arrived in Cincinnati the following morning.

KELVINATOR INSTALLED IN NEBRASKA MARKET

LEXINGTON, Neb.—The Western Public Service Co., Kelvinator distributor here, recently installed in the Same George Market of this city, two XO-141 cross fin coils in a large refrigerator, and one XO-102 cross fin coil in a 10-ft. display case. These were connected to an RB-140 Kelvinator air-cooled condensing unit.

Why Not Price Boosts?

By Harvey Lindsay, President, Dry-Zero Corporation

A COUPLE of months ago B. C. Forbes, dean of newspaper commentators on finance and business, caustically inquired why financial and banking houses, which so eagerly and successfully induced the public to invest in stocks at fancy prices during 1929, were currently making no effort to sell these same securities at bargain prices. Mr. Forbes suggested that an intensive selling campaign would yield remarkable results, and he hinted that the investment houses were, therefore, somewhat lacking in astuteness.

But those shrewd men who sold securities by the truckload in 1929 know better. They know that bargains of solid gold studded with diamonds and rubies will not lure John Public to buy securities in a declining market. They know that, so long as today's prices are under yesterday's, John Public will keep his money in his pants.

Prices Rise, Buying Starts

But let prices begin to rise! John Public's palm begins to itch; out comes his cash, and he becomes an eager buyer. Study the volume of sales on the New York Stock Exchange for the last four months. With prices bumping along bottom—no volume. With stocks starting their spectacular rise—volume swells like an Arkansas flood.

The action of the average buyer in the stock market during the past two months, coupled with parallel incidents in other markets, has led me to conceive a heresy—that lower prices will neither broaden the market nor increase the volume of sales of electric refrigerators. On the contrary, it seems logical that price reductions at the present time may actually retard sales.

Investment Purchaser

The observations that have led me to advance these opinions have little to do with the electric refrigerator itself. They centre, instead, upon the customer—the same John Public who refused with such disastrous stubbornness to purchase stock at bargain prices, but who elbowed his way into the buying line when stock prices began to mount.

To begin with, I realize it can be argued that John Public was seeking profit from rising prices in the stock market. To an extent this may be true, but the failure of brokers' loans to keep pace with the increased volume of transactions proves beyond doubt that the bulk of the purchases were outright and for investment.

No Lure in Bargains

Inquiries among bankers and brokers substantiate this, and many are the stories told about the hoarded money that went to buy stocks and bonds. This same money was available for buying at lower price levels, but bargain stocks failed to lure it from mattresses, safety deposit boxes, and savings accounts.

For these reasons I feel justified in linking John Public's attitude toward the stock market with his attitude toward reduced refrigerator prices.

The thing that kept money out of the stock market was a belief that tomorrow's prices would be under today's, and the same reaction may logically result from lower refrigerator prices.

Leaving the stock market for the field of retail merchandise, we come to the story of the Chicago chain of retail women's apparel stores that raised prices on its silk stockings a few weeks ago with a resulting pickup in sales that has continued to this writing.

The management's explanation is this: Women, because they are constant shoppers, are quickest to note shifts in price trends. Convinced that prices on stockings had reached bottom and started climbing, they began to buy more freely.

A similar buyer's reaction was experienced by a New England manufacturer several months ago. After seeing successive price cuts gradually erase his profits, he determined—come what would—to raise prices to a profitable level.

Best Volume in 2 Years

The result was, instead of decreased volume of sales, the best volume in two years. His dealers are carrying fuller lines, making more sales. The manufacturer thinks business should find some encouragement from his experience. He says:

"If dealers can be induced to believe that prices have reached rock bottom and are on the way up, a lot of hesitant retailers aren't going to keep on ordering below their requirements against the day when another price cut comes along. They'll begin to think about full stocks and representative assortments. I'd like to see a few more industries try the stimulant of boosting prices."

A similar experience is that of a well-known neckwear manufacturer who, when the market was deluged with cheap neckties, some of which were selling at as absurdly low a price as 25 cents, decided to introduce a new line of high-priced neckwear. Sales helps were devised to show his product's superiority. The results were so excellent that production was doubled.

Another story is that of the Los Angeles dairy company that found new business difficult to obtain because all milk distributors were competing on parallel lines.

Offers Richer Milk

This particular dairy offered an extra-quality milk three per cent richer than the standard at a one cent increase in price. Within a month fifty per cent of its customers were taking the more expensive milk and many new customers had been obtained.

An instance of the unexpected boomerang effect that sometimes occurs when standard, well-known manufacturers reduce prices to meet fly-by-night outside competition is the third-grade gasoline situation.

Third-grade or "blue" gas was introduced by Standard Oil and other big refiners to meet the competition of the so-called "trackage" concerns. It seemed obvious that the motoring public would prefer to purchase "cheap" gas from well-known concerns than from little-known outsiders.

Gasoline War Examples

But here are three instances of what actually happened:

(1) In St. Paul and Minneapolis, the introduction of third grade gasoline by the "regulars" actually resulted in increased business for the "trackage" companies.

(2) In Indiana, according to the Petroleum Marketer, the "third pump has failed to accomplish its purpose. Instead of helping to stabilize the market, it has thrown it into a more chaotic condition then it was before. . . The trackage operator has reaped a golden harvest from the widespread educational effect of the majors' blue gas. So far the third pump has failed to accomplish its purpose and, according to a survey in this state, its functions of eliminating price cutters and 'trackage' operators has failed. From the standpoint of profits in dollars and cents the third pump has proved a total loss."

(3) Los Angeles—a scene of continuous gasoline warfare—it is reported that there is no indication the regular companies' "blue" gas is driving the independents out.

I realize that each of the incidents mentioned may be dismissed summarily with the assertion that it has nothing to do with the selling of electric refrigerators, and that the situation in the refrigerator market is "different."

Comparable Cases

But how different? Compare, for example, the gasoline market selling a satisfactory product at a reasonable price. Then, into each field, came the outsider, the trackage gas dealer and the in-and-out refrigerator manufacturer. Each offered the public an inferior product at a lower price.

The regular oil companies met this competition with an inferior product of their own—"blue" gas; the veteran refrigerator manufacturers are now attempting to do a similar thing with lower-priced lines.

The regular oil companies' "blue" gas has, according to all reports, actually helped the trackage operators. Therefore, the parallel having carried to this point, isn't it logical to assume that the "regular" refrigerator companies' lower-priced cabinets will do the same?

In fact, it seems to me that the refrigerator manufacturers are even worse off than the oil companies. For, while the quality of gasoline is easily determined in terms of mileage, pick-up, power and easy starting, the quality of electric refrigeration is a closed book to the average customer.

The $55, $65 and $75 refrigerators look the same, claim all the same qualities, yet sell for half the price of the standard makes. That alone is enough to puzzle John Public.

Add to it the wave of price reductions by standard companies, and he is completely lost in a maze of speculation upon what it's all about. Consequently, he tucks away his spare cash and waits to see what will happen next.

And can he be blamed? After all, nobody has ever taught John Public what makes a good refrigerator. To be sure, there has been much stress on the merits of individual mechanical units, their simplicity, power and everlasting qualities. But that is not selling REFRIGERATION. It is not the complete picture.

Never Learned Difference

The public has never been given a chance to learn the essential differences between a good refrigerator and a shoddy one. Certainly price reductions can never teach him!

To complete the price picture, let me point out that, despite any "differences" that may exist, the ineluctable fact remains that Mr. and Mrs. John Public are the customers, and that they do not buy freely on a falling market.

Also, there is no disputing the fact that a return to normal business conditions following a depression has never been accomplished without an increase in prices. Also, the last three years have demonstrated forcefully that drastic tearing down of the price structure will not stimulate buying.

Also, permit me to observe that the electric refrigeration industry has chosen an odd time for price slaughtering. The contrast with other industries is astonishing.

Tire Industry Prices

For example, less than a week after a new series of refrigerator price reductions, the tire industry—ridden to death with price-chopping, throat-cutting tactics—announced price increases of 11 to 15 per cent. In this step even the mail order houses joined leading manufacturers.

To me, the tire industry is merely the symbol of a general trend which is leading to stabilized or increased prices in nearly every field.

Therefore, let me ask only this: Will John Public, who buys without urging on a rising market, purchase an electric refrigerator on a falling disorganized market, or will he rush to spend his money on those things which apparently will cost more tomorrow then they do today?

Because it seems to me the answer to this question is obvious, I venture to repeat my heretical belief—that lower prices will neither broaden the market nor increase the volume of sales of electric refrigerators, and that it seems logical that price reductions will actually retard sales.

BENNINGTON 'COMMONS' KELVINATOR EQUIPPED

BENNINGTON, Vt.—The "Commons Buildings," one of the units of Bennington College, Bennington, Vt., has been equipped throughout with Kelvinator electric refrigeration by the Twin State Gas & Electric Co.

EXPORTS & IMPORTS INCREASE IN AUGUST

WASHINGTON, D. C.—After exports had declined through five months and imports had fallen off for successive months since last December, each took an upward turn in August, and a favorable balance of trade was maintained as well, according to official figures made public by the Department of Commerce.

Although the gain in exports was only about $2,150,000, the increase in imports, amounting to approximately $11,000,000 was the largest since March, 1931, when a gain of $36,000,000 was registered over the preceding month. August, 1932, exports aggregated $109,000,000 and the total imports was $91,000,000, leaving a favorable balance of about $18,000,000.

Gold Imports Increase

August was the first month of the current year in which the imports of gold were greater than the exports, total imports having been $24,170,000 compared with $18,067,000 in exports. July exports amounted to $23,474,000 and the imports for that month were $17,837,000. A department statement accompanying these figures is as follows:

"In other years, an increase in imports has meant greater volume of manufacturing production. Since there has been a reopening of factories in many communities, and expansion of operation of others in the last two or three months, it is to be assumed that the August increase in imports reflects greater raw material purchases.

"As regards the change in the gold movement, Federal Reserve System authorities previously have expressed the opinion that July was the point when the outbound gold shipments showed an important indication of a returning confidence abroad. So long as a fear existed as to the stability of the dollar, foreign holders of capital in American banks were gradually reducing their balances in this country.

Drain of Gold Intensive

"The July total of exports was only $23,474,000, whereas the outbound shipments in June amounted to $226,117,000 and for May, the exports aggregated $212,229,000. Thus, it is seen, that while the imports have fluctuated within a narrow range from $16,000,000 to $24,000,000 in the last several months, the drain on the stock of gold was intensive.

"Imports of silver exceeded exports for the month of August by $1,121,000, the receipts having amounted to $1,554,000 and the exports, $443,000.

"Statistics on exports and imports show a gain in the March exports of $1,300,000 over February, but there had been no other upward movement in exports since October, 1931, which showed an increase of $24,700,000 over September.

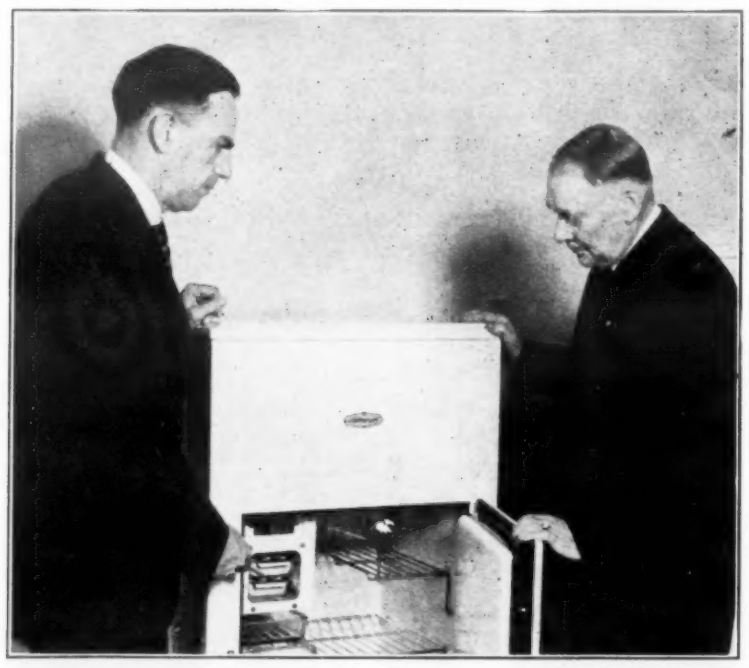
"Totals for both exports and imports struck the lowest point in many years in July, when the incoming shipments amounted to $79,420,000 and the exports were valued at $106,842,000."

Increasing Prices

Attention was called to the possible effect of increasing prices on the nation's foreign trade. It can not be measured accurately, but there is believed to be basis for the thought that a threat of higher prices abroad had some effect on the total of imports.

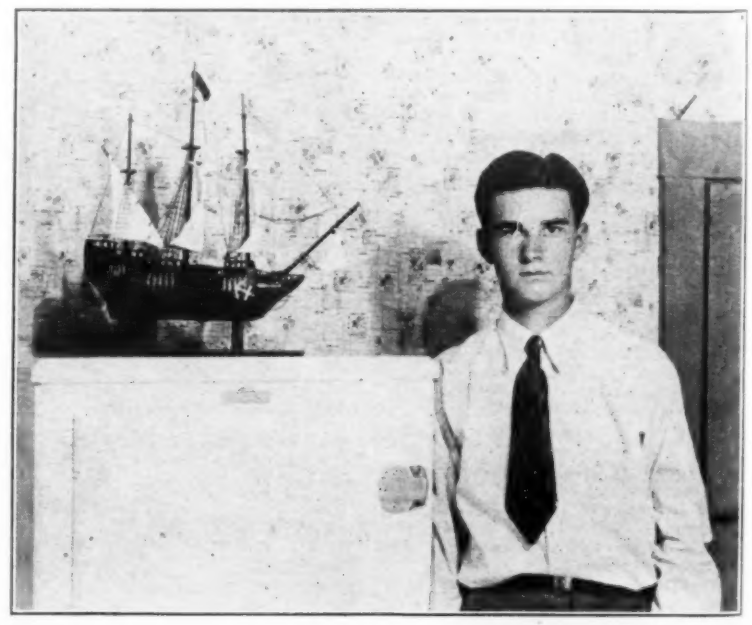
"Dealers and manufacturers here are aware of the indications from abroad that increases in commodity price levels appear to be under way, and they obviously have acted to some extent on that warning. Increased values likewise would cause the same volume of goods to total a larger figure, but until itemized statistics are available, the indications of effect of price changes are not susceptible of proof."

Old Distributor and New Model



Lewis Crosley (left), vice president of the Crosley Radio Corp., shows the new model C-35 Crosley refrigerator to John Hanson, Waterloo, Iowa.

Two Mayflower Models



Wesley Schmill wanted to show how many ice cubes the original S. S. Mayflower could carry so he modeled a replica of the ship and won a Mayflower refrigerator in a recent Trupar Mfg. Co. contest.

EDWARDS CO. MAKES 27 G. E. COMMERCIAL SALES

SALT LAKE CITY, Utah—The commercial division of Frank Edwards Co., General Electric refrigerator distributor, reports making 27 large commercial sales in a period of less than a month.

Eighteen of the sales were made to the U. S. Commercial Airways Dept. for the Lighthouse division.

The sale was made by B. L. Wood, commercial manager, and makes a total of 40 G. E. refrigeration units installed at emergency landing fields in this part of the country.

TAX PLACED ON RADIO SETS BY CUBAN GOVERNMENT

WASHINGTON, D. C.—A tax ranging from $3 to $10 a year, depending upon the number of tubes, has been placed upon radio receivers in Cuba, according to the Department of Commerce.

Dealers believe that they will find it necessary to absorb this tax, at least for the first year.

Driscoll Appoints Goff, Wood

CHARLOTTE, N. C.—D. C. Goff has been placed in charge of commercial sales, and Lehman Wood will be contact man for the utility companies of the state, for L. W. Driscoll, Inc., General Electric refrigerator and Hotpoint range distributor here, according to L. W. Driscoll, president.

Wood, at one time was in the employ of the Tide Water Power Co., and in later years was associated with the Carolina Power and Light Co. as advertising and sales promotion manager.

INSTALL LEONARDS 4 HOURS AFTER ORDER IS PLACED

AUBURN, N. Y.—Four hours after William J. Schoeffel had signed an order for five Leonard refrigerators for his apartment house, they had been installed and were making ice cubes for his tenants.

Herbert Bros., Leonard dealer here, took care of the order, and claim a new speed record for installation.

REQUESTS FOR INFORMATION

Please refer to the 1932 Refrigeration Directory and Market Data Book for a complete list of all manufacturers of refrigeration equipment, parts, materials, supplies and accessories; also for all available statistical data on sales of refrigeration equipment, distribution methods, etc.

To obtain a copy of this book send $2.00 to Business News Pub. Co., 550 Maccabees Bldg., Detroit, Mich.

Advertisers will be given preference in published answers to requests for buyer's guide service, but a complete list of all known suppliers will be mailed if stamped, self-addressed envelope is enclosed with inquiry.

Readers who can be of assistance in furnishing correct answers to inquiries, or who can supply additional information, are invited to address Electric Refrigeration News, mentioning query number.

Century and Imperial Trade Names

Query No. 953—"Can you advise us whether or not any refrigerator manufacturer is or has been using the terms 'Century' or 'Imperial' in connection with a particular model of refrigerator?

"We do not have a collection of catalogs of the various refrigeration companies, and as the U. S. Patent Office only has registered trade marks, it occurs to us that you might be able to furnish this information."

Answer—The "Imperial" trade-name is used by Tricold Refrigerator Corp., Buffalo. We have no information indicating that the "Century" name has been applied to any refrigerator.

Milk Coolers

Query No. 954 (New York contractor)—"We have a prospect for a milk cooling outfit to accommodate 24 to 30 cases of milk, 12 bottles to a case. Kindly put me in touch with a manufacturer of a complete machine and cabinet."

Answer—A complete list of milk cooler manufacturers is published in the 1932 REFRIGERATION DIRECTORY and MARKET DATA BOOK.

Tax on Multiple System Evaporators

Query No. 955—"As there seems to be some difference of opinion in the trade and a question in our minds, will you please advise us by return air mail whether evaporators for multiple installations in apartment houses are subject to the special government tax."

Answer—Yes, multiple systems evaporators are subject to the tax. Quoting from the Federal tax bill passed last June, the 5 per cent tax is imposed on: "Household type refrigerator *(for single or multiple cabinet installations)* operated with electricity, gas, kerosene, or other means *(including parts or accessories therefor sold on or in connection therewith or with the sale thereof)*." Italics ours. Subsequent interpretations have not relieved multiple systems, or component parts of them, from the tax.

Power Bureau's Air-Conditioning Manual

Query No. 956—"In the *Engineering Section* of ELECTRIC REFRIGERATION NEWS, under date of Sept. 21, I notice an article regarding an air-conditioning manual issued by the general power bureau of the Pacific Coast Electrical Association. Will you please advise me where this book can be secured, and the price of same?"

Answer—This manual is a paper-bound book of 114 pages showing a large number of photographs of air-conditioned buildings, and including about 50 pages of technical and market information on the subject. It may be obtained at a cost of $2 from the Pacific Coast Electrical Association, 447 Sutter St., San Francisco.

A.S.H.V.E. Guide

Query No. 957—"Where may we secure the *1932 Guide* of the American Society of Heating and Ventilating Engineers?"

Answer—Address the secretary of that society at 51 Madison Ave., New York City.

Data on Food Wastage

Query No. 958 (Cleveland advertising agency)—"One of our clients has written us that he has seen a statement somewhere with regard to electric refrigeration advertising or promotion that '20 per cent of all food is wasted, 10 per cent due to improper refrigeration, and 10 per cent due to the unedible portions such as egg shells, bones, etc.' The statement looks familiar. Can you direct us to the source or authority for it?"

Answer—We have no record of this statement. Any information from subscribers will be appreciated by editors of the NEWS.

Valley Refrigerator

Query No. 959 (Service man, Illinois)—"Could you tell me where to obtain any information concerning the Valley refrigerator? I am interested in receiving a service manual and parts and price catalog."

Answer—Any information about this refrigerator will be appreciated by editors of the NEWS.

ANSWERS TO BACK QUERIES

Coin Meters for $0.50 and $1

Query No. 950 (Refrigeration dealer, Texas)—"Will you kindly advise us of manufacturers of coin-operated devices that will operate on $0.50 and $1 denominations. Our reason for wanting the larger denomination is that we want to use it on commercial refrigeration."

Answer—H. B. Stedman, The Park Central, Seventh Ave. at 55th St., New York City, eastern agent for the R. & R. Appliance Co., Inc., Findlay, Ohio, advises us that the latter firm builds a coin meter for these denominations.

"Tylac" Breaker Strips

Query No. 951 (Range manufacturer, Ohio)—"Please advise us where we may purchase 'Tylac' breaker strips as used in electric refrigerators?"

Answer—We are advised that this material may be secured from the Tylac Co., Monticello, Ill.

KELVINATOR EQUIPS U. S. INDIAN SCHOOLS

ALBUQUERQUE, N. M.—The U. S. Indian school here was recently equipped with Kelvinator D-22, D-11, and two S-7 models, by Raabe & Mauger Co., Kelvinator distributor.

Similar installations, by the same distributor, were made at the U. S. Indian school, Santa Fe, N. M., at the Charles H. Burke Indian school, Fort Wingate, N. M., and at the Veterans' Hospital, Fort Bayard, N. M.

THE CONDENSER

PAYMENT IN ADVANCE is required for advertising in this column. The following rates apply:

POSITIONS WANTED—Fifty words or less, one insertion $2.00, additional words four cents each. Three insertions $5.00, additional words ten cents each. ALL OTHER CLASSIFICATIONS—Fifty words or less, one insertion $3.00, additional words six cents each. Three insertions $8.00, additional words sixteen cents each.

REPLIES to advertisements with box numbers should be addressed to the box number in care of Electric Refrigeration News, 550 Maccabees Building, Detroit, Mich.

POSITIONS WANTED

MECHANICAL ENGINEER. 17 years' experience in tools and production. 10 years on refrigeration. During past four years have designed and developed two successful machines. Wish to make connection with progressive manufacturer who is either in production or who would consider manufacture of a machine already designed, for top or bottom mounted. Box 510.

ENGINEER—14 years active in domestic and commercial refrigeration work. Experience includes thorough knowledge of thermodynamics and mechanics of gases, design of units, compressors, boilers and accessories (expansion valves, floats, thermostats, etc.), engineering management, laboratory, production and service work. Position desired with unit or parts manufacturer. References. Box 511.

FRANCHISE OPEN

WANTED—for distribution in Canada service parts for Frigidaire, Kelvinator and Universal machines. We also want lines of refrigeration accessories such as rubber ice cube trays, fittings, valves, etc. P. D. Ferguson, 51 High Park Blvd., Toronto, Canada.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912

Of Electric Refrigeration News, published weekly at Detroit, Michigan, for October 1, 1932.

STATE OF MICHIGAN,
COUNTY OF WAYNE—ss.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared George N. Congdon, who, having been duly sworn according to law, deposes and says that he is the Business Manager of the Electric Refrigeration News, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August, 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:
Publisher, F. M. Cockrell, Detroit, Michigan.
Editor, G. F. Taubeneck, Detroit, Michigan.
Business Manager, Geo. N. Congdon, Detroit, Michigan.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)
Business News Publishing Co., Detroit, Michigan.
F. M. Cockrell, Detroit, Michigan.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.)
None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is .....
(This information is required from daily publications only.)

GEO. N. CONGDON,
Business manager.

Sworn to and subscribed before me this 26th day of Sept., 1932.
(SEAL) LEO P. HALLER.
(My commission expires Apr. 20, 1935.)

COMBINATION SUBSCRIPTION RATES

How to save money on your subscription order

NO.	PUBLICATIONS	YOU PAY	YOU SAVE
1	Electric Refrigeration News (1 Year) and Refrigeration Directory and Market Data Book	$4.00	$1.00
2	Electric Refrigeration News (2 Years) and Refrigeration Directory and Market Data Book	$6.00	$2.00
3	Refrigerated Food News (1 Year) and Refrigeration Directory and Market Data Book	$2.00	$1.00
4	Refrigerated Food News (1 Year) and Electric Refrigeration News (1 Year)	$3.50	$ .50
5	Refrigeration Directory and Market Data Book and Electric Refrigeration News (1 Year) and Refrigerated Food News (1 Year)	$4.50	$1.50
6	Refrigeration Directory and Market Data Book and Electric Refrigeration News (17 Weeks)	$2.00	$1.00

Order by number. Use coupon below. These rates for U. S. only.

Group Order Rates for U. S. and Foreign Countries

PUBLICATIONS	NUMBER	UNITED STATES*	CANADA†	ALL OTHER COUNTRIES	
Electric Refrigeration News	1 subscription	$3.00	$6.00	$4.00	These foreign
	5 or more, each...	2.75	5.75	3.75	rates will
	10 or more, each...	2.50	5.50	3.50	be increased
	20 or more, each...	2.25	5.25	3.25	on or before
	50 or more, each...	2.00	5.00	3.00	Jan. 1, 1933.
Refrigerated Food News	1 subscription	$1.00	$2.00	$1.50	These foreign
	5 or more, each...	.95	1.95	1.45	rates will
	10 or more, each...	.90	1.90	1.40	be increased
	20 or more, each...	.85	1.85	1.35	on or before
	50 or more, each...	.80	1.80	1.30	Jan. 1, 1933.
BOTH PAPERS	1 subscription	$3.50	$7.00	$5.00	These foreign
	5 or more, each...	3.25	6.75	4.75	rates will
	10 or more, each...	3.00	6.50	4.50	be increased
	20 or more, each...	2.75	6.25	4.25	on or before
	50 or more, each...	2.50	6.00	4.00	Jan. 1, 1933.

*U. S. and Possessions and Pan-American Postal Union Countries.
†High rates for Canada are due to Canadian tariff of 5c per copy.

SUBSCRIPTION ORDER

BUSINESS NEWS PUBLISHING CO., ...1932
550 Maccabees Bldg., Detroit, Mich.

☐ Enclosed is remittance for $.....
☐ Please enter my order for COMBINATION OFFER NO.....at $.....
☐ Enter subscription to Electric Refrigeration News ☐ 1 Year $3.00. ☐ 2 Years $5.00.
☐ Enter subscription to Refrigerated Food News ☐ 1 Year $1.00. ☐ 2 Years $1.50.
☐ Send 1932 Refrigeration Directory and Market Data Book. $2.00 per copy.

Name .....
Address .....
City ..... State.....

10-5-32

IMMEDIATE ORDERS URGED BY DENNETT

BOSTON—Immediate placing of orders for merchandise which will be needed in the next few months was urged upon retailers by Carl P. Dennett, chairman of the banking and industrial committee of the First Federal Reserve District at the recent Boston Conference on Distribution.

Dennett pointed out to executives of large department stores and representatives of retail establishments that a large amount of merchandise must undoubtedly be purchased between now and Jan. 1. The purchases suggested would cover requirements through the holiday season.

It was pointed out that if these orders for staple goods could be estimated, and 50 or 60 per cent of these orders placed in the market at the present time, it would furnish a back-log of orders for the manufacturers.

This back-log would reassure employes as to continuous employment at least through the holiday season, which in turn would provide a strong stimulus to business.

While full returns have not been received as yet from the entire board membership, a number of concerns have announced plans to make purchases aggregating $60,700,000 between Sept. 1 and Dec. 31, he said.

AUGUST SALES SHOW GAIN IN DEPARTMENT STORES

WASHINGTON, D. C.—August department store sales showed an increase over those of July, but the increase was less than usual for this season. This figure, as determined by the Federal Reserve Board's adjusted index, is the lowest for August in 13 years.

The index, which is based on 1923-25 averages as 100, and which is compiled from 494 stores in 211 cities, dropped from 67 in July to 66 in August, according to the statement issued by the board. Not since January, 1919, has the index been so low, according to additional information made available.

The value of department store sales in August was 24 to 26 per cent lower than during the same month a year ago, according to the board's statement.

Magician Aids Show of Youngstown Bureau

YOUNGSTOWN, Ohio—A magician who took live rabbits and cooked and raw food out of a refrigerator was employed by the Electric Refrigeration Bureau of this city, for a series of 15-minute performances on the stage of the Warner Theater, during the eight days starting Saturday, Sept. 24.

Eight dealers joined in the activity, and each had a salesman present during the entire week. An electric refrigerator was given away each day at the theater, and other smaller prizes were awarded.

Both the theater and the local sales outlets carried on an augmented newspaper advertising campaign during the week. The theater made no charge for the use of its property. Dealers shared the expense for prizes and advertising. W. P. Walsh, chairman of the local bureau was in charge of the general arrangements.

NEW SHOWROOM OPENED BY DETROIT DISTRIBUTOR

DETROIT—A new showroom has recently been opened here by Radio Distributing Co. of Detroit and Grand Rapids, Mich., in order to accommodate its growing line of household utility items.

The company, in addition to its line of American Bosch radio, has taken on the Clarion line of radio. It also distributes Mayflower refrigeration, both domestic and commercial; ABC washers and ironers; Royal vacuum sweepers; Cunningham radio tubes; Arcturus radio tubes; and a full line of radio repair parts.

100 FRIGIDAIRES INSTALLED IN BALTIMORE APARTMENT

BALTIMORE—One hundred household Frigidaires have been installed in the new Blackstone Apartments here, latest building development of Williamson-Guy, Inc., according to E. B. Dorsee, manager of Frigidaire's Baltimore-Washington branch.

This firm has previously installed the same type of equipment in two other apartment buildings, states Dorsee.

Down Payment

Miss Eva McPherson, Kelvinator home economist, inspects the cow that Paul W. Jones, Welch, W. Va., distributor, received as down payment on a unit.

User Best Prospect For Refrigeration, Salesman Finds

CHILLICOTHE, Ohio—The best prospect for an electric refrigerator is the man who has already bought one, declares R. E. Hastings, president of the Hastings Electric Co., Frigidaire dealer of this city.

Three years ago Hastings sold an MC-12 Frigidaire to A. M. Rusk, who operates a combination billiard hall and lunch room. The refrigerator was installed in Rusk's residence.

Three weeks later, Rusk bought an AP-6 for his residence.

A short time afterward Rusk ordered an AP-7-2 for his son's residence followed by another order for a W-10, two W-6's, and a water cooler for his restaurant.

G. E. Employes Vote to Continue Relief

SCHENECTADY, N. Y.—By vote of the employes' representatives of the Schenectady works of the General Electric Co. the 2 per cent deduction from wages in behalf of unemployment emergency relief will continue through the coming winter, according to officials of the company.

The Works Council, made up of representatives of all the shop workers in the plant, took this action upon the expiration of the previous period for which the 2 per cent deduction instead of 1 per cent had been maintained.

It was decided to continue the 2 per cent deduction until April 30, 1933, if necessary, and the company, concurring as before, will contribute dollar for dollar with the employes.

FORT DESCRIBES PLAN OF HOME LOAN BANK BOARD

FRENCH LICK, Ind.—Ownership of communities by those who live there and financing of these communities by their own savings institutions was described by Franklin Fort, chairman of the Home Loan Bank board here recently, as the fundamental principle of the Federal Home Loan Bank System.

Addressing the 40th convention of the United States Building and Loan League, the board chairman protested criticisms of the system as a government venture into business and socialism. On the contrary, he asserted, "eventual ownership of each community" by that community formed the motivating spirit.

Fort suggested that building and loan associations likely will constitute the largest number of shareholders in the regional home loan banks, and he urged, therefore, that they "select men schooled in the lending business" as directors whom they, as stockholders, will be empowered to elect.

COLUMBUS, OHIO, CONCERN TO SELL STEWART-WARNER

COLUMBUS, Ohio—Tracy-Wells Co. has been appointed Stewart-Warner refrigerator distributor here, according to Ben Morgan, Jr., in charge of electrical appliance sales for the Tracy-Wells Co.

This gives Tracy-Wells, together with its subsidiary company, Arnold Woodenware Co. of Cleveland, the greater part of central and northeastern Ohio for the distribution of Stewart-Warner products, which include the new refrigerator, movie camera, and radio.

The new products were demonstrated recently at the Fort Hayes Hotel to 48 Tracy-Wells salesmen. The meeting was in charge of R. C. Hager, vice president of Tracy-Wells Co.

ICE-O-MATIC FOR PATRON'S USE PLACED IN THEATER

SPRINGFIELD, Ill.—A refrigerator placed in the lobby of the Fox Lincoln Theater here, for the convenience of patrons who wish to put perishables in it during the performances, has given A. Dirksen & Son, Ice-O-Matic refrigerator distributor, considerable advertising.

The same distributor likewise drew the attention of the public to Ice-O-Matic refrigeration by a display at the Illinois State Fair recently. Four domestic cabinets, one of the recently introduced model F-AW 1½-hp. commercial compressors, as well as a cutaway model of one of the commercial units were shown.

Frank Redmond, manager of the appliance division of A. Dirksen & Son, reports that it was necessary to keep several men in attendance every day at the fair to accommodate interested inquiries.

* * *

CONSTRUCTION STARTS ON 'FAIR' BUILDINGS

CHICAGO—Construction of the Federal and States buildings of Chicago's 1933 World's Fair—"A Century of Progress" exposition—has been undertaken on Northerly Island on the Fair grounds.

Before winter, both buildings which will house the exhibits of the United States government and the various states of the Union are expected to be under one roof. The structures are being erected in juxtaposition to symolize the essential unity of the federal and state governments.

The Hall of States will be a horseshoe shaped structure, two stories high, 500 ft. across at the base, and with two arms 550 ft. long and 140 ft. wide at the widest point forming a court. Opening on this court will be entrances to the various state and territorial exhibits.

The Federal building will extend across the base of the horseshoe. It will be 620 ft. long by 300 ft. wide, with a rotunda surmounted by a 75-ft. dome around which will be three 150-ft. towers, representing the three branches of government—administrative, legislative and executive.

$1,000,000 Appropriation

The Federal government has appropriated $1,000,000 for its buildings and exhibits in the exposition, and amounts already pledged by the various states exceed $2,000,000.

Ten corporations or associations have signed contracts for the erection of special buildings at the World's Fair. Among these are: General Motors Corp., Sears, Roebuck & Co., Firestone Tire and Rubber Co., American Radiator Co., Johns-Manville Corp., Southern Cypress Manufacturers Association, Thomas A. Edison, Inc., and the Christian Science Publishing Society.

The National Terrazzo & Mosaic Association has signed a contract to build a permanent mosaic esplanade on Northerly Island, as an approach to the Adler Planetarium.

Work will be undertaken soon on the Home and Industrial Arts exhibits of the fair. Contracts have been signed and plans completed for the construction of eight exhibit houses, two special buildings, and an exhibit pavilion.

The theme of this exhibit is how modern and attractive homes can be provided at a cost within the reach of families of the most moderate circumstances.

Home Appliances, Air Conditioning

The following corporations, associations, and individuals will build exhibit houses, demonstrating new building materials, or new uses for traditional materials:

Masonite Corp., Chicago Lumber Institute, representing the National Lumber Manufacturers Association, American Rolling Mill Co. and Ferro Enamel Corp., General Houses, Inc., John C. B. Moore, Carl A. Strand, State of Florida, and Common Brick Association. These houses will be completely furnished and equipped.

An I-shaped pavilion, called the Home and Industrial Arts Building, will complete the exhibit. This building will comprise two main halls—Home Planning Hall and the Hall of Interior Decoration—which will be connected by a series of galleries devoted to the arts and crafts. Exhibits of heating and air conditioning, household appliances, accessories, building materials, home furnishings, interior decorating, lighting, etc., will be displayed in the hall composing this pavilion.

Automobiles from 48 states of the Union as well as Mexico, Canal Zone, and Canada have passed through the gates of the fair grounds since they were opened to visitors last June.

Between June and September, the average daily attendance increased eight-fold. During June it was 622, in July it increased to 2,521, and during August it reached 5,230.

About Home Service

By Margaret M. Thompson

Kelvin Kitchen, in the Kelvinator factory, was the scene of much activity recently. Recipes for the fall and winter season were being prepared and tested by Marion Sawyer and her corps of efficient home economists, who had returned from their various territories to spend a few days at the factory.

Gertrude Janssen had returned from a tour of New England on which she had visited dealers and distributors in Massachusetts, Connecticut, Rhode Island, New Hampshire, and Vermont.

She was instrumental in placing a Kelvinator in Miss Farmer's School of Cookery in Boston. Alice Bradley, well known for her magazine articles, is principal of this school.

Eva McPherson, who is working in the middle west territory, was among those at the factory. She told of an informal showroom or home demonstration which she has worked out, to which salesmen bring their more difficult prospects.

These demonstrations are usually given in the evening, so that both husband and wife may attend. Every demonstration has resulted in more than its quota of immediate sales, she states.

Pauline Peacock should have been resting from her strenuous trip through the South but instead she was baking delicious cheese cookies the day I visited the Kitchen.

During July she divided her time between Missouri Power and Gulf Power properties, and the month of August she spent in Alabama working with Susan Brandon, home economics director of Alabama Power Co., and with Clark and Jones, Alabama distributor.

Approximately 37,381 people were contacted by Nellie Snavely, home economist for R. Cooper Jr., Inc., Chicago General Electric distributor, during the last six months of 1931, according to Edwina Nolan, home service director for General Electric refrigeration department.

Contacts were made through users' day demonstrations, utility demonstrations, dealer demonstrations, with many more sales as the direct result of Miss Snavely's work.

Among other General Electric distributors who have active home service departments is Modern Home Utilities, Inc., of Waterbury, Conn. In a period of three weeks recently, Miss Fletcher, home service director, conducted 10 cooking demonstrations with an attendance of 1,040.

In addition she had an attendance of 748 women at 10 card parties and 25 home demonstrations.

In Boston, Mabel F. Neal of the home service department of Gentsch & Thompson, Inc., G. E. distributor, devotes the first week of each month to the Boston retail operation.

"We have had an average daily attendance of 25 women," she says. "The balance of the month is devoted to home service work with our dealers and direct work with our salesmen, and we feel that we are entirely conservative in estimating that we have contacted at least 75 women per week during the past year."

Extensive activities are featuring the first autumn season that Rex Cole, Inc., New York G. E. distributor, has had the distributorship of the General Electric Hotpoint range.

Ilah Manchester, home economist, arranged two demonstrations recently, one in Staten Island, and one in Nyack. Demonstrations in the New York area assumed a definite form through the inauguration of a series of weekly meetings to be held throughout the month of October in Jamaica.

Weekly meetings are also being planned for the Brooklyn and Staten Island territories.

Petite Jacqueline Frost, director of the home economics department of Gibson Electric Refrigerator Corp., arrived at the factory at Greenville, Mich., a few days ago, for a brief stay following a three-months lecture tour in the East where she delivered a total of 64 lectures.

Under the sponsorship of the Louis Buehn Co., Gibson distributor in Philadelphia, she delivered lectures in Camden, N. J., and Trenton, N. J.

The Krich Distributing Co. of Newark sponsored Miss Frost's lectures to its dealers in New Brunswick, N. J.; Englewood, N. J.; Paterson, N. J.; Hackensack, N. J.; and Newark.

The last group of lectures were given under the auspices of the Morison Electrical Supply Co., Gibson distributor in New York City.

Westinghouse Home Economist

Miss Edna I. Sparkman, refrigeration home economist of the Westinghouse company, was caught in an avalanche of letters.

An Aid To Theatre-Goers

A. Dirksen & Sons, Ice-O-Matic distributor at Springfield, Ill., has placed a unit in a theater lobby for patron's packages.

WRITTEN TO BE READ ON ARRIVAL

Engineering Section

IN TWO PARTS PART TWO

ELECTRIC REFRIGERATION NEWS

Registered U. S. Patent Office

The business newspaper of the refrigeration industry

VOL. 7, NO. 5, SERIAL NO. 185 DETROIT, MICHIGAN, OCTOBER 5, 1932 Aug. 1, 1927, at Detroit, Mich. Entered as second-class matter THREE DOLLARS PER YEAR

SHOWS ACTION OF INITIAL MOISTURE IN AN INSULATION

Migration of Adsorbed Moisture Described By McPherson

By John T. Schaefer

CHICAGO—Migration of adsorbed moisture in hermetically sealed insulation structures was described by Hal W. McPherson before the first session this season of the Chicago chapter of the American Society of Refrigerating Engineers, Tuesday night, Sept. 27. Local insulation authorities from several of the prominent insulation manufacturers entered into the discussion which followed.

McPherson's talk was based on a series of tests made on household refrigerator cabinets in which fibrous insulating material had been carefully sealed in place, and samples of the insulation removed periodically for examination. The refrigerator was set up in a room with a temperature of 86° F. and 90 per cent relative humidity, and adjusted to hold temperatures around 42° F.

Results of the tests showed that adsorbed moisture (the initial quantity which adheres by atmospheric pressure to the fibres of the insulant) is evenly distributed when first installed in a cabinet, but migrates inward and downward with increasing service on the refrigerator.

This redistribution of the moisture causes the formation of a "drenched layer" of the insulation immediately below the inner liner of the cabinet. Another aggregation of adsorbed moisture collects in the insulation in the right-hand side of the cabinet liner next to the evaporator. This migration action is depicted in the chart on page 2 of this issue.

"Drenched layer" is a term coined to indicate the layer of insulation, less than an inch thick, immediately below the bottom of the cabinet liner, where moisture content reached 18.6 per cent by weight after 1,000 hours of test. This amount of moisture caused condensation in the insulation, and its resulting decrease of efficiency and corrosion of the liner.

"As a whole," McPherson said, "the moisture content did not approach alarming values, although in low-tem-

(Concluded on Page 2, Column 1)

SPEAKERS LISTED FOR N.A.P.R.E. CONVENTION

CHICAGO—Speakers have been announced for the twenty-third annual convention and educational exhibition of the National Association of Practical Refrigerating Engineers to be held at the Hotel Sherman here, Nov. 1 through Nov. 4.

W. E. Zieber of the research department of the York Ice Machinery Corp., York, Pa., is one of the main speakers on the program of the convention. He will read a paper on "Some Important Points for the Refrigeration Ice Plant Owner and Operator."

"Header Arrangements for Evaporating Coils" will be the subject of an address by H. C. Guild of the A. M. Byers Co., while "Solid CO_2" will be the title of a paper to be given by Frank R. Zumbro, Frick Co.

Donald MacKinzie of Swift & Co. will discuss "Packing House Refrigeration." Harry Sloan of Vilter Mfg. Co. will speak on "Conditions Favoring the Use of Booster Compressors."

A paper on "Unit Coolers" will be read by George B. Bright, Detroit, whereas "Dairy Refrigeration" is to be discussed by H. S. Fielder, Cherry Burrell Corp.

Comfort Cooling" will be treated by

(Concluded on Page 3, Column 2)

RUDD TO MANAGE MOTOR DEPARTMENT OF G. E.

SCHENECTADY, N. Y.—F. J. Rudd has been appointed managing engineer of the motor department of General Electric Co., according to N. J. Darling, manager of the River Works at Lynn, Mass. Rudd succeeds L. F. Underwood, who has been made manager of the Pittsfield, Mass., works of the company.

New Howell Motors Have Capacitor In Frame

HOWELL, Mich.—Incorporation of a capacitor unit inside a fractional horsepower motor frame has just been announced by the Howell Electric Motors Co. with the introduction of its new "built-in" capacitor motors for use with refrigerators, oil burners, etc.

Five sizes are offered, in ratings of ⅛, 1/6, 1/5, ¼, and ⅓ hp. They are built to operate at a speed of 1735 r.p.m. with full load.

Both rigid and rubber mountings are offered as standard on horizontal types, while the new motors are also built in special vertical types, the announcement states.

They are furnished either with waste-packed sleeve or double-sealed ball bearings. For the sleeve bearings a large oil reservoir is provided with wool yarn to supply oil to the bearings. Ball bearing motors are grease packed. A splash-

(Concluded on Page 3, Column 1)

N. Y. ENGINEERS HEAR TALK ON ICE CREAM

NEW YORK CITY—In a talk on the manufacture of ice cream before the New York A.S.R.E. section last Thursday night, P. T. Sealey, chief engineer, Reid Ice Cream Corp., explained the obsolescence of most ice cream refrigerating machinery by saying that the gradual growth of the industry in the last 40 years has inclined manufacturers to add to their original plants bit by bit until the amount of money tied up in old machinery has become too great to allow scrapping and rebuilding from the ground up.

Sealey built his paper around the new Reid plant in the Bronx. The Reid company, he said, was typical of the whole ice cream industry, in that it was started about 40 years ago in a basement under a store with two tubs using an ice and salt mixture for their hardening agent.

The factory was moved, but the old type of freezer was kept, motors were added, then the freezers were changed, and so on in such a way that there was never a time when the whole plant was

(Concluded on Page 5, Column 3)

FEDDERS BRINGS OUT BOTTLE-TYPE COOLER

BUFFALO—Fedders Mfg. Co. has just brought out a new bottle-type beverage cooler for drug stores, restaurants, clubs, and other public places where cold drinks are sold, according to W. D. Keefe, sales manager.

It is built in two cabinets: a cooling-dispensing unit for placement on a soda fountain or counter, and a compressor cabinet which may be located under the counter, in a basement, or in a rear room.

The "Kold-Drink-Server," as the new equipment is named, will be sold through refrigeration dealers, Keefe announces.

Both dispensing unit and compressor cabinet occupy a space 15 in. square and

(Concluded on Page 3, Column 5)

Production Chief

T. C. FEDDERS
Announces new beverage coolers.

KOLD-HOLD PLAN OF COOLING USES EUTECTIC BRINE

'Storage Battery' System Designed for Trucks, Ice Cream Cabinets

GREENVILLE, Mich.—A "storage battery" system of refrigeration in which the refrigerating effect is "stored up" by cooling a eutectic solution, has recently been made available to manufacturers of refrigerated trucks, ice cream cabinets, storage coolers, and display cabinets, by the Kold-Hold Co. of this city.

The Kold-Hold system, as it has been named, employs practically all the elements used in a direct expansion system, with the evaporator submerged in a eutectic solution which freezes at any predetermined temperature to a solid ice of flint-like hardness having a high latent heat of fusion.

A pound of the solution with a freezing point of 10° F. will absorb 142 heat units in changing from ice to a liquid.

A Kold-Hold assembly for a truck consists of a tank for the eutectic solution, a compressor, and a motor. A feature of the assembly is its light weight. A eutectic tank and its solution will weigh less than one tenth of a brine assembly capable of doing the same refrigerating job, the engineers claim.

The compressor employed on the truck in conjunction with the Kold-Hold

(Concluded on Page 5, Column 2)

Carrier - Brunswick Commercial Line Announced

NEWARK—A new line of commercial refrigerating machines bearing the trade name "Carrier-Brunswick" has just been announced by Carrier Corp. Both air- and water-cooled machines are included, the air-cooled units ranging from ¼ to 1½ hp., water-cooled machines ranging from ⅓ to 2 hp. Methyl chloride and Freon (F-12) are the refrigerants used.

HOWE ICE MACHINE TRUCK USED BY ICE CREAM FIRM

WAUKEGAN, Ill.—A. L. Brummond Co. of this city is using a new refrigerated ice cream truck that was built by the Howe Ice Machine Co., Chicago.

The truck holds 400 gals. of ice cream, and is refrigerated by a 68-gal. brine tank which is cooled at night by direct expansion of ammonia from the ice cream company's refrigeration plant.

During the day, refrigeration stored up in the brine tank furnishes ample cooling effect to keep ice cream hard while deliveries are being made, according to H. B. Howe, president of the Howe organization. The brine cooling coil in the truck was fabricated with 150 ft. of 1¼-in. pipe.

The truck is finished outside in Allegheny metal.

Aluminum Foil Insulation Saves Space, Permits Construction Economies

By E. B. Newill

Vice President in Charge of Engineering, Frigidaire Corp.

Aluminum foil insulation, as used in various Frigidaire models, permits a very satisfactory type of cabinet construction, and since it enables the manufacturer to increase the food storage capacity of a cabinet without enlarging its overall dimensions, it also makes possible some marked construction economies.

Advantages claimed for this new type of insulation are:

1. Low thermal conductivity.
2. Negligible weight.
3. Low heat storage capacity.
4. Impervious to moisture.
5. Clean in its application and use.
6. Vermin and rodent proof.
7. Permanence.

It has been known for many years that metal surfaces will reflect heat, and as far back as 1850 the combination of such metal surfaces and confined air spaces as a means of insulation against heat was investigated by Peclet, a European scientist.

Several years ago, Dr. Ernst Schmidt of the University of Munich continued the experiments of Peclet, substituting thin aluminum sheets for the heavier, corroding metal used by his predecessor, and was successful in developing a new and effective type of insulation which, however, did not possess the low heat conductivity of recent developments.

It was speedily adopted by continental marine architects, railway systems, and large cold storage plants.

Several hundred refrigerator cars have been constructed in Germany, England, Denmark, and Sweden, employing the same principle of insulation in their walls, at a saving in weight in each instance ranging from one to two tons.

As a matter of fact, aluminum foil insulation is almost without weight. A cubic foot of crumpled foil weighs but three ounces in contrast with 10 lbs. for cork and 17 lbs. for magnesia. This weight-saving factor, is one of the reasons which has caused various navies to

(Concluded on Page 2, Column 4)

Aluminum Foil

E. B. NEWILL
Describes Frigidaire's insulation.

Frigidaire Wins Suit On Cold Control

Iowa Court Holds Blackmore, Summers Patents Valid in Suit Against Majestic Dealer

DES MOINES, Iowa—In one of the most momentous decisions affecting refrigeration patents handed down since the famous Frigidaire-Absopure trial (decided by Judge Arthur J. Tuttle, March 23, 1929, at Bay City, Mich.), Judge Charles A. Dewey of the U. S. District Court here has ruled valid Frigidaire's patent claims on the use of a "cold control" with an electric refrigerator. In a decision read Sept. 19, Judge Dewey declared two Frigidaire Corp. patents valid and infringed upon by apparatus sold by Jesse Moore, Des Moines dealer for Majestic electric refrigerators, which are manufactured by the Grigsby-Grunow Co.

Coming as a distinct shock to designing engineers for rival manufacturers, who felt secure in their opinions that the construction of their refrigerators was not affected by these patents, this decision has upset the calculations of engineering and production departments throughout the industry.

Step Toward Patent Control

It is one of the first effective steps toward patent control yet taken in the electric refrigeration industry; and although this decision was rendered by a district court and is subject to possible revision by a higher court, it is considered by many engineers and patent attorneys to have far-reaching significance.

The Frigidaire Corp., with the Penn Electric Switch Co. of this city (which, in 1930, was licensed by the Frigidaire Corp. to use the two patents in question) as co-plaintiff, filed suit in the district court on Oct. 30, 1931, the complaint setting forth the infringement on the use of a cold control with an electric refrigerator as covered by the Blackmore patent 1,658,323 (filed June 15, 1922, issued Feb. 7, 1928), and the Summers patent 1,819,979 (filed May 30, 1928, issued Aug. 18, 1931).

Both Patents Ruled Valid

Judge Dewey, in a memorandum opinion, ruled that neither patent was invalid on the ground of conflict with prior inventions, as claimed by attorneys for the defendant.

The main issue in the trial concerned the status as an invention of an auxiliary means of varying the pressure on a thermostatic bellows.

Judge Dewey declared that "elements in the combination used in the defendant's device are the same or the me-

(Concluded on Page 3, Column 1)

NEW GIBSON COOLER PRODUCES ICE CUBES

GREENVILLE, Mich.—Ice cubes as well as cold drinking water are produced by the new model 167 Gibson water cooler, on which production has been started by the Gibson Electric Refrigerator Corp. here.

The deluxe cooler will be listed at $176.50 f.o.b. factory, furnished in white lacquer. In black lacquer the list price will be $179.50 f.o.b.

A small bottle-high cooling compartment containing an ice-cube tray, storage space, and a safe-type door with lock and key comprise the most unique features of this cooler.

Interior dimensions of this cooling

(Concluded on Page 3, Column 2)

IMPERIAL ANNOUNCES NEW TOOLS, VALVES

CHICAGO—Designing engineers of the Imperial Brass Co. have developed several new refrigeration valves, a new line strainer, and a number of special service tools which that company is introducing to the trade this fall.

Among the new valves is a combination liquid receiver tank valve with a connection for the condenser line. It eliminates the need for an opening in the other end of the receiver tank, and does away with a flange and elbow. The valve has a connection for the condenser line, another for the evaporator supply, and a male connection with a short length of tubing to feed the liquid line, for the receiver tank.

Another new product is a back-seating angle shut-off valve with a brass indicator wheel. When the valve is fully opened, the stem seats against a bushing to seal against leakage. Packing may be replaced with the valve opened, without interrupting operation of a refrigeration system.

A new two-way line shut-off valve for multiple installations is mounted on a cadmium-plated steel base plate.

A two-way line back-seating shut-off valve with a brass indicator hand wheel has also been announced, particularly for multiple installations. A bushing threaded and soldered into the inside of the valve forms a metal-to-metal seat with the valve stem when the valve is fully opened.

Imperial engineers have also devised a three-way shut-off valve for risers of multiple installations. In this, the valve

(Concluded on Page 3, Column 3)

M'PHERSON DISCUSSES ADSORBED MOISTURE

(Concluded from Page 1, Column 1)

perature work the migration would be more severe, and condensation in the drenched layer would probably become serious."

Before proceeding to the laboratory methods employed in the test, he defined adsorption as the adhering action of a vapor or gas to a solid; in the case of insulation, the solid being the fibres of the insulation, and the vapor being atmospheric moisture.

"There seems to be a marked difference between the adsorbing action of the vapor clinging to the solid, and the 'drenching action' of the condensate which wets the solid," he said, "because adsorption seems to be readily reversible, while drenching is practically irreversible."

Defining redistribution, he stated: "When the insulation is first installed, the adsorbed moisture is homogeneous throughout the structure, that is the adsorbed moisture is evenly distributed at the start, but under operating conditions this initial and unavoidable moisture is redistributed so that the moisture content increases in some places and decreases in others."

The speed of redistribution, or migration, depends on the temperature difference between inside and outside air, the tests showed.

A major premise of the tests was zero infiltration with absolute hermetic sealing of the insulation. To determine the sealing, a ½-lb. vacuum was pumped in the cabinet and held over night before being considered sealed. The vacuum was pulled before and after each test.

Throughout the test, samples were removed from the insulation of the cabinet at regular intervals, and analyzed for moisture content, new insulation being placed in the test holes immediately so the performance of the refrigerator would not be affected. Changes in moisture content of specimens taken from the same points provided the basis for studying the migration of adsorbed moisture.

Samples were taken through 2-in. holes in the outer walls of the cabinet. One sample was taken from each hole as representative of conditions near the outer surface of the insulation, while another further in was taken for the inner surface condition.

After each sampling, the hole in the outer shell was closed up with a rubber stopper, and the inside vacuum again pulled on the cabinet.

A chemist's forceps was used to remove the fibrous fragments, and to place them in a 100-c.c. bottle. The bottles were dried in a dessicator before each sampling, and handled with wire tongs so that the moisture of the operator's hands would not affect subsequent weight determinations of the bottle and its contents, McPherson explained.

The bottled samples were weighed on a chemical balance, and then dried in a thermostatically controlled oven at 212° F. until they ceased to lose weight. Except in the case of drenched samples, six hours was sufficient time for complete dehydration, McPherson said.

Although admitting that repacking the test holes with new insulation introduced some errors, McPherson pointed out that after one week's time (the usual period between tests), no difference in density could be detected between the repacked insulation and the adjoining material which had not been touched. It was found that one operator could repack a hole to within 3 per cent of the original density, he claimed.

Repacking of new insulation in the drenched layer probably introduced a greater error, he believes, because of the much greater difference between the moisture contents of the new and old insulation.

Samples at Six Points

Inner and surface samples of insulation were taken at six points during the test:

1. Upper right-hand side of the cabinet adjacent to the evaporator (the cold spot); 2. Lower right side of the cabinet about six inches below the cold spot; 3. Center of the rear wall; 4. Upper left side, opposite the cold spot; 5. Lower left side of cabinet, opposite point 2; and 6. Center of the bottom of the cabinet.

Three samples were removed from point 6; a surface sample, an inner sample ½ to 1½ in. from inner liner, and an innermost sample ¼ to ½ in. from the inner liner. The latter was the drenched layer which produced condensation.

All test spots except the drenched layer and the lower point on the cold side gave up adsorbed moisture in varying degrees. The drenched layer, however, had 15.5 per cent of moisture content after 600 hours using insulation with 6 per cent original content of adsorbed moisture by weight. This figure mounted to 18.6 per cent after 1,000 hours, and to 22.3 per cent after four years, the last being a field observation.

"As specimens were removed from the drenched layer after 1,000 hours of operation, they were immediately recognized by their discoloration and drenchedness," McPherson said.

Rust, But No Disintegration

Although the insulation was rust-stained, there were no signs of disintegration of the material.

Temperature explorations of the cabinet showed that the bottom was several degrees colder than the rest of the cabinet, he reported. This, together with the effects of gravity on moisture, accounted for the formation of the drenched layer, McPherson stated.

Before and after the 1,000-hour test, the heat losses of the cabinet were measured with a precision cabinet calorimeter, and very little difference found. This showed that the over-all efficiency of the cabinet is not materially changed by redistribution of its initial moisture.

Further tests were run with other insulants, McPherson said, with essentially the same results, indicating that the redistribution of initial moisture is independent of the insulant, but is a function of the temperature difference between inside and outside air.

He suggested that for further tests engineers should consider the following important points: The inner layer of insulation on the right side of the cabinet, the center of the bottom, and the door.

For low-temperature work, particularly, he urged attention to the redistribution of adsorbed moisture, and suggested that dehydration of new insulation before it is installed in hermetically sealed structures, would be helpful. He does not believe that dehydration would be necessary for temperatures used in household refrigeration.

Drying holes in the inner liner were tried as a means to vent moisture to the inside of the cabinet, but were effective only in the insulation immediately adjacent to the holes, he explained. Vents in sides of the cabinet did not reduce moisture in the drenched layer.

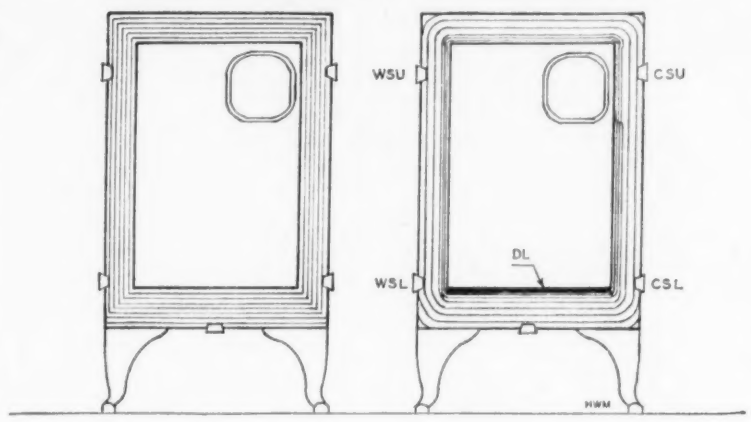
McPherson interpreted the tests as indicating that special attention and good insulation should be placed on the cold (right-hand) side of the cabinet, in the bottom, and in the inner layer of the door.

Presenting the written comments of Hugh Krampe, Armstrong Cork and Insulation Co., Mr. Robinson, local Armstrong engineer, pointed out that important operating economies can be effected in cold storage work by the use of good insulating materials, proper installation and sealing methods, and correct erection methods.

Gale T. Pearce, Dry-Zero engineer, expressed the view that in household cabinets the insulation should be sealed to the outside, but vented to the inside so that moisture can migrate to the cooling unit. "Zero or lower temperatures require a very tight outside seal," he said, "but never seal the inside of a low-temperature container."

O. A. Anderson, Swift & Co., chairman of the session, said that the latest practice in cold storage work is to erect insulation with no interior seal, permitting moisture to travel toward the cold as it pleases.

Redistribution of Moisture



With time, the evenly distributed initial moisture of insulation (left) migrates to form a "drenched layer" DL at right. See explanation below.

Aluminum Foil Insulation Saves Space, Permits Construction Economies

(Concluded from Page 1, Column 4)

standardize upon its use, particularly in submarine construction.

In practically all the refrigeration installations abroad where this principle of insulation is in use, the aluminum foil was crumpled, thus forming the necessary minute air spaces. It remained for Frigidaire engineers to develop a much more effective method of using tightly stretched sheets of aluminum foil, spaced closely together so that all possibility of rapid air motion is precluded. This we have called Stataflex construction.

Frigidaire's construction consists of a series of light-weight aluminum foil sheets, tightly stretched at intervals of approximately one third of an inch. Each sheet reflects about 95 per cent of the radiant heat which falls upon its surface. This metal is unique in the fact that insofar as its insulation properties are concerned, its surface does not deteriorate with age.

Air sealed in a narrow space has practically no movement, so that very little heat may be carried across the space by convection or air movement. If the surfaces of this space are metallic, only a small amount of radiant heat will be emitted by the one surface and absorbed by the other, thus one might pun and say the transmission of radiant heat is "foiled."

This leaves—as the only remaining mode for heat to travel across the space—conduction through air. The latter is one of the slowest methods of transmitting heat known, and the result of such a combination is a very good insulator.

The 95 and 5 per cent ratio applies only to radiant energy, and is not to be included in measurements of the other two forms of heat transmission.

The low radiating power of aluminum foil may be discerned by merely laying a small sheet upon the outstretched hand. The heat of the body striking the foil is promptly reflected back to the hand, creating a very preceptible sensation of warmth.

Into the walls, the top, and the bottom of every Frigidaire where this construction is used, there is placed a section of aluminum insulation.

Each section consists of a built-up assembly, with the space divided into narrow, confined air spaces by sheets of special embossed aluminum. The assembly of aluminum insulation is secured in place under a sheet of galvanized iron whose edges are sealed to the frame of the cabinet with a special asphalt compound, thus making the insulated space impervious to moisture.

With this type of insulation, our tests show that less thickness is required in the refrigerator walls than with other insulating materials to obtain equal insulating effectiveness. This lessened wall thickness naturally makes it possible to increase the storage capacity of the cabinet itself.

Hence arises the company's advertising claim, "one-fourth more storage space in the same sized cabinet." While aluminum foil is fully as expensive as other good insulation, the fact that it provides more storage space does make possible some marked manufacturing economies, which have been passed on to the customer in lower prices.

We have been able to decrease the total weight of small refrigerators by approximately 75 lbs. This accomplishes a further saving in shipping cost to say nothing of the greater ease of installing or moving the cabinet about the kitchen after it has once been placed in use.

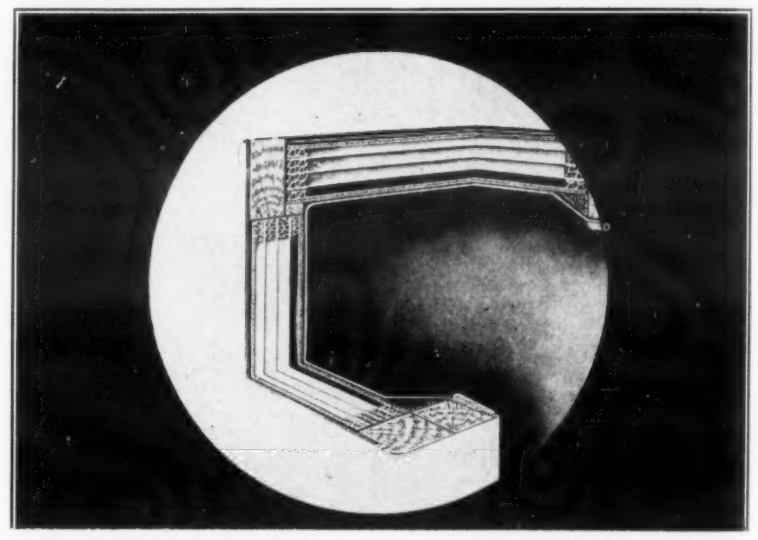
A pound of aluminum foil used in Frigidaire insulation has a surface area of 17,500 sq. in., or approximately 100 sq. ft. In our 5-cu. ft. model we use ½ lb. of this foil in comparison with 90 or more lbs. of rock cork. This foil is .0006 in. thick or approximately one-fifth the thickness of a human hair.

Cork, rock cork, rock wool, and other insulations store up a considerable amount of heat when the mechanism is not in operation, thus increasing the length of time to cool down the storage box. Aluminum foil, on the contrary, with almost no mass, lends itself to a quick pulldown to low temperatures.

The matter of moisture, always a factor in the use of insulation, has little effect on aluminum foil. Small pores in mineral or vegetable insulation with a cellular structure make good water-retaining receptacles.

The presence of this water greatly increases the thermal conductivity, with bacterial decay and odors. Aluminum foil does not absorb moisture and any that may gather on its surface is not retained.

Frigidaire's Stataflex Construction



Cut-away section of a Frigidaire cabinet using aluminum foil insulation, showing method of supporting the sheets of foil.

FRIGIDAIRE WINS SUIT ON ITS COLD CONTROL

(Concluded from Page 1, Column 5)

chanical equivalent of the plaintiff's device."

"The addition of a release button and an extra element do not avoid infringement," his opinion said.

Attorneys for the Frigidaire Corp. are asked in the opinion to prepare a decree for the judge's signature, embodying the decision and granting a permanent injunction against Moore's sale of apparatus using the control device.

According to Will Freeman of Bair, Freeman and Sinclair, who represented the Penn Switch Co., the Frigidaire Corp. will probably file individual damage suits against each refrigerator manufactured using a control device similar to that used by the Grigsby-Grunow Co. in the manufacture of the Majestic electric refrigerator.

Accountings of profits made by each manufacturer would be asked to determine the amount of damages, Mr. Freeman said.

The Frigidaire Corp. was represented in the suit by Drury W. Cooper of Cooper, Kerr & Dunham, New York City. Majestic was represented by Jones, Addington, Ames & Seybold of Chicago.

New Howell Motors Have Capacitor In Frame

(Concluded from Page 1, Column 2)

proof frame has been developed for the new motors.

Features claimed for the new motors are: Less space requirement for a capacitor motor (since the capacitor is inside); high starting torque, liberal overload capacity; high power factor; and elimination of radio interference. The locked rotor current on all ratings is within the N.E.L.A. limit of 20 amperes, the designers state.

Performance data announced on the new motors include:

Horse Power	Full Load Efficiency Per Cent	Full Load Power Factor Per Cent	Starting Torque Per Cent of Full Load Torque
1/8	55	64	465
1/6	59	66	465
1/5	62	67	440
1/4	63	68	400
1/3	64	69	330

POSTUM PLANT USES YORK WATER COOLING SYSTEM

BATTLE CREEK, Mich.—A York water cooling system, installed by the York Ice Machinery Corp., York, Pa., furnishes the cold water, circulated in the rolls, around which the wax is applied to the paper used for packaging the products of the Postum Cereal Co., here.

The Postum Co., founded by C. W. Post, is the second oldest food manufacturing plant in Battle Creek. It gives employment to 1,500 workers, making products having a value of $50,000,000 per year.

As a unit of General Foods Corp. the Postum Cereal Co. contributes Postum Cereal, Instant Postum, Post Toasties, Post's Bran Flakes, Grape Nuts, and Whole Bran to the 80 odd food products now being manufactured and marketed by that syndicate.

All these products are wrapped and sealed in waxed paper. It is estimated that 3,000,000 lbs. of waxed paper is used per year.

Joins Gibson

F. G. PURCELL

* * *

GREENVILLE, Mich.—Appointment of F. G. Purcell to the service department of the Gibson Electric Refrigerator Corp. was announced last week.

Mr. Purcell will be in charge of the preparation of service instruction manuals.

He comes to the Gibson organization from Frigidaire Corp., where he was in similar work for six years.

Also Ice Cubes

Gibson's new water cooler makes ice cubes for mixing drinks.

* * *

NEW GIBSON COOLER PRODUCES ICE CUBES

(Concluded from Page 1, Column 4)

compartment are: width 8½ in., depth 12⅝ in., and height 12¼ in.

The ice tray has a capacity of 21 cubes. Just below it is a shelf containing a small porcelain drip-pan for defrosting. Each cooler will be equipped with one Gibson handy mixing spoon and bottle opener, and four seal-again bottle cappers for partly filled bottles.

A tall and slender design was selected in order that the cooler will not take up valuable office space. The outside dimensions are as follows: width, 14 in., depth 23⅞ in., and height 50 in.

The new models are equipped for either bottle or city pressure. The cooling capacity is 67 gals. of water per 24 hours.

The faucet is chrome plated. It is placed in an artistically fashioned inset, which prevents it from catching on clothes and from taking up additional space.

Coast Guards Stop Yacht Named For F-12

NEW YORK CITY—W. R. Zuhlke, of the New York offices of the American Radiator Co., is somewhat of a yachtsman, and purchased a comparatively small craft for recreation. On applying to the Department of Commerce for a license, he was granted one bearing the number F-12. Being somewhat conversant with refrigeration and the various refrigerants, he decided to name this craft the "Dichlorodifluoromethane."

Upon returning from a cruise over Labor Day, he ran into a heavy fog. While proceeding cautiously, he was greeted with "Ship ahoy" and a voice demanded through the fog the name of the ship, announcing that it was the Coast Guard.

Mr. Zuhlke responded that the name of the ship was the "Dichlorodifluoromethane." Evidently the skipper of the Coast Guard thought someone was "kidding" him, and demanded that the ship come up alongside for inspection.

The skipper was dumbfounded to see such an elongated name painted on the small craft. As Mr. Zuhlke hadn't violated any law, he was permitted to proceed on his way leaving a bewildered Coast Guard wondering where and how a man thought of such a long name for such a small boat.

AMTHOR BUILDS PORTABLE TACHOMETER FOR TESTING

BROOKLYN—A new portable tachometer for testing machine speeds has just been announced by the Amthor Testing Instrument Co. of this city.

The chief feature of the new instrument is the automatic fixed reading, according to Harvey Spence of the Amthor organization. When applied to a rotating shaft, the instrument reads the speed, but when removed the pointer does not return to zero so that the instrument can take readings in dark or inaccessible places.

The dial reads directly in r.p.m., accessories being available so that surface speeds in feet per minute can be taken.

N.A.P.R.E. LISTS SPEAKERS FOR ANNUAL CONVENTION

(Concluded from Page 1, Column 1)

M. G. Harbula, consulting engineer, Glen Ellyn, Ill.

An electrical demonstration will be given at the convention by Westinghouse Electric & Mfg. Co. The educational exhibition is under the supervision of A. P. Dougherty of the Ohio Galvanizing & Mfg. Co., Niles, Ohio, chairman of the National Exhibits Committee.

IMPERIAL ANNOUNCES NEW TOOLS, VALVES

(Concluded from Page 1, Column 5)

stem opens and closes the branch outlet.

Another new three-way shut-off valve is built on the back-seating principle, and has a brass hand wheel. In this also, the branch outlet is opened and closed by the valve stem. Like the other valves for multiple installation work, it is mounted on a cadmium-plated steel base plate.

A complete line of compressor valves with a back-seating needle shut-off has also been added by Imperial. These have a hex brass seal cap and a standard pipe plug, and are offered for tubing from ¼ to ½ in.

Four sizes of the new forced brass line strainers have been designed, varying in length from 2¾ to 3¼ in. for tubing from ¼ to ½ in. They use 120 mesh brass screen with a layer of felt between the first and secondary screen to form a filter for the removal from a refrigerating system of tube scale, compressor chips, oil dirt, etc.

The copper tubing is furnished in 25- and 50-ft. coils, dehydrated at the mill. It has a .035-in. wall thickness, 20 Stubs gauge.

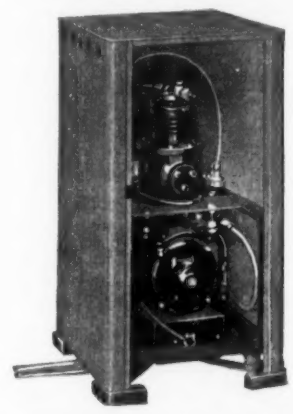
The new flaring and burnishing tool has a pair of adjustable jaws to accommodate various sizes of copper tubing. The tool first spins out the tubing to a soft flare, then when a lock-nut is tightened and a wing nut released, the same tool burnishes to a polished surface by three hardened rollers.

Built for service men making repairs on refrigeration systems without losing any refrigerant, the new pinch-off tool will pinch tubing by pressure of a wing nut so that no gas can pass the sealed point in the tubing.

The new tube bending tool is intended for bending copper, brass, or aluminum tubing with outside diameters from ⅜ to ⅝ in. It employs two hand levers operating axially from a roller.

New Fedders Cooler

The dispensing cabinet may be located on a store counter.



The machine cabinet is installed remotely, in basement or in store.

FEDDERS BRINGS OUT BOTTLE-TYPE COOLER

(Concluded from Page 1, Column 2)

are enclosed in autobody steel panels finished in grained mahogany, walnut, or white. The compressor cabinet is mounted on rubber pads to minimize noise or vibration, and is provided with a flat top so that it may be used for display surface if installed in the store.

The dispensing unit holds an inverted glass bottle up to and including a 5-gal. capacity. A special rubber supporting ring is provided with vent holes through which air enters the bottle to relieve vacuum, providing uninterrupted flow through the dispensing spigot.

The faucet, finished in chromium plate, is of the quick-acting lever type designed to prevent clogging with fruit pulp. An aluminum drip-pan is furnished as standard equipment.

For dispensing orangeade and lemonade, the cooling reservoir is made of Armco iron finished in triple-coated, acid-resistant porcelain, applied under high temperatures. For dispensing grape juice, the reservoir is built of pure aluminum. Nonfrost, dry expansion refrigerating coils are wound around the reservoir, in direct metallic contact.

The dispensing cabinet stands 17¾ in. high, and is insulated with Rock Wool. It weighs 48 lbs. net. A temperature selector mounted on the side of the cabinet gives any desired beverage temperature from 50 to 35° F. The unit has a cooling capacity of 4 gals. per hour with a 30° temperature drop.

The compressor cabinet is 29 in. high, and weighs 90 lbs. The compressor is belt-driven by a ¼-hp., 110-volt motor mounted directly below it in the cabinet.

INSTALL TEMPRITE SYSTEM

NEWARK—Donahue's Cafe near here has just installed 26 new Temprite water coolers, served by a bank of Kelvinator condensing units.

Standard Oil Men Describe Lubrication Of Small Refrigerating Machines

By the Technical Division, Standard Oil Co. (Indiana)

THE lubrication of household electric refrigerators is seldom given much thought by the user because it seldom requires his attention. The service man, however, knows that periodic attention to certain of the parts requiring lubrication is desirable, and in fact is very necessary to prolong the useful life of the mechanism and insure operating efficiency.

The application of lubricants to the various parts of the refrigerator mechanism is best treated from the standpoint of the motor and fan bearings where the latter are encountered, and from the standpoint of the compressor. The selection of suitable lubricants must, of course, be dealt with similarly. Hence, the principal factors affecting both application and selection can be profitably examined.

Motor Lubrication Simple

The lubrication of the motor and fan bearings is relatively simple, and will therefore be discussed first. Application of oil is usually by a felt or piece of wicking which is mounted to feed oil continuously in small quantities to the bearing. Oil is applied to the wick reservoir only occasionally—twice a year may suffice. The means of application and the long time of service expected of the oil, make it necessary to use an oil of relatively light body for proper feeding through the wick and of high stability to resist deterioration.

Snug clearances and the high speed of operation also demand the use of relatively light bodied oils. The characteristics of the oil must permit flow to the bearings without delay when starting up cold, and yet supply adequate body to provide a lubricating film on the bearing surfaces under maximum heat of operation.

Stability of Oils

These requirements are readily met, yet it is surprising how many machines are serviced which show undue bearing wear on motors and fans. One of the principal difficulties appears to be the use of oils of insufficiently good stability. The products of oil deterioration clog up the felt or wicking and interfere with the needed lubrication. The remedy is the use of better quality oils which will withstand long service.

Most household electric refrigerators employ a compressor of the piston type. Whether the compressor is of the piston type or the rotary type, it is self-enclosed and lubricated with oil carried in the base of the compressor.

In the usual piston type arrangement, to be specific, the oil is carried in the crankcase, and the piston and cylinder are lubricated by splash. Where this arrangement is not used, for example a vertically mounted motor driving a horizontally mounted compressor, the oil is supplied by pressure to the various points requiring lubrication.

The charge of oil carried in the compressor or in the compressor housing is put in only at the factory or at especially equipped service stations, because it must be done according to a carefully worked-out procedure by trained experts. The reason for this complication is readily appreciated when it is realized that the refrigerant and the lubricating oil are carried together in the same system.

They have their separate functions and the system is so designed that the oil remains in the compressor, little if any escaping into the rest of the system with the compressed gas, yet the oil charge cannot be disturbed without subjecting the refrigerant to possible entry of air and moisture and running the risk of considerable loss of the refrigerant.

The entry of air into the refrigerant is very detrimental to operating efficiency and every precaution is exercised to guard against it. Moisture entry is particularly harmful. Both contaminants, the latter especially, accelerate reactions between the refrigerant and the oil, as well as reactions with metal parts of the machine, and promote sludge formation which is one of the principal sources of difficulties associated with lubrication.

Oil Sludge Difficulties

Difficulties resulting from oil sludge are encountered in many forms. It is obvious, of course, that sludge accumulation is capable of blocking oil passages and in this way interferes with proper lubrication. It can pack behind the piston rings, cutting down compression efficiency. It can cause sluggish valve action, which likewise reduces efficiency. It can carry over to the float valve or to the expansion valve causing the valves to stick so that they fail to operate as they should.

When oil of the proper characteristics is accidentally carried over into the condenser coils, it will drain out of its own accord, but sludge will remain there seriously impairing the cooling efficiency of the condenser. Any sludge carried past the expansion valve into the expansion coil will, of course, have detrimental insulating effect there also.

Sulphur Dioxide Reactive

The various refrigerants used have different properties in respect to reaction with the lubricating oil. The most widely used refrigerant is sulphur dioxide which is decidedly reactive to all but the most highly refined pure petroleum oils.

The most satisfactory oils for use with sulphur dioxide are oils of this character refined to such an extent that they are colorless. These oils are usually described as "white oils." They are free from components which the chemist calls "unsaturated" and which cause objectionable sludging difficulties. The so-called "yellow oils" or "pale oils" do not have sufficient resistance to the action of sulphur dioxide to insure absolutely trouble-free operation.

Even under the best circumstances small amounts of air and moisture get into the refrigerant, and this moisture particularly aggravates sludge formation and separation when yellow oils are employed. Under these severe conditions even a white oil will blacken from attack by the products of sulphur dioxide and moisture reaction, but there will be no sludge separation and the machine will continue to operate efficiently and without trouble.

Methyl chloride and ethyl chloride are easier on the oil than sulphur dioxide, but it is quite necessary to select an oil of very low acidity characteristics in order to avoid a troublesome electrolytic phenomenon which is sometimes described as "copper plating."

These Refrigerants Soluble in Oil

These refrigerants are soluble in oil and hence may cause dilution and consequent thinning out of the oil during use. If dilution cannot be controlled within safe limits, allowance for the anticipated thinning effect is usually provided for in the selection of a relatively heavy oil.

The correct viscosity of oil for any particular make and model of machine is best considered an individual matter. Recommendations are usually available from the manufacturer or from oil companies which supply lubrication service of this kind.

In general, oils for machines employing sulfur dioxide refrigerant will range in Saybolt Universal viscosity (at 100° F.) from 100 seconds to 300 seconds, with the latter figure prevailing, and for methyl chloride or ethyl chloride machines from 300 to 800 seconds.

Low Cold Test Oil

To prevent congealing of any oil that may reach the expansion coils, a low cold test oil is required. A satisfactory oil in this respect will usually have a pour test of 20° F. below zero or lower.

The economies of providing best possible lubrication through the use of best quality oil should now be apparent. In addition to oil deterioration, difficulties which are extremely troublesome in themselves, there is the item of wear on frictional surfaces causing rapid dropping-off of the operating efficiency of the machine and necessitating premature repairs or replacements.

A badly worn compressor or a badly operated one from sluggish valve action must run a greater length of time to maintain the desired refrigeration and this, of course, runs up the cost of operation. At the same time, customer dissatisfaction is in the making, the consequences of which are so far-reaching that no one will deny the wisdom of endeavoring to avoid the risk.

Testing Gibson Finish

Ralph Speers, Gibson engineer, finds a year's exposure to the elements has not damaged this lacquer cabinet, mounted on a roadside billboard.

INSURANCE FIRM ARRANGES CONFERENCES ON SAFETY

NEW YORK CITY—The Policyholders Service Bureau of the Metropolitan Life Insurance Co. here has just introduced a new plan for promoting safety in industrial organizations through a series of foremen's safety conferences.

The company has prepared a 23-page booklet, entitled, "Foremen's Safety Conferences," and is distributing copies of the publication among manufacturing executives, safety engineers, and others interested in accident prevention.

Material in the booklet, developed from safety programs of several large manufacturing concerns, confines itself to fundamental principles of safety applicable to all types of industry. It suggests that manufacturers sponsor a series of seven meetings of their various foremen, each meeting to be devoted to a discussion of one safety problem.

Programs for the meeting are outlined in detail. The booklet first lists subjects for each of the seven conferences and suggests questions to be asked attendants by the presiding officer. Answers to these questions are given in the publication.

Following are the subjects suggested for discussion at the seven meetings: reasons for safety work, using facts to prevent accidents, getting the new employe started right, helping the "accident-prone" employe, getting the department behind the foreman, value of safeguarding equipment, and the effect of good housekeeping on safety and operation.

AIR-CONDITIONING FIELD SHOWS INITIAL EXPANSION

NEW YORK CITY—The initial expansion registered during the current year by corporations manufacturing air-conditioning equipment has been sufficiently impressive to assure this potentially large industry a prominent place in the vanguard of the trades pointing the way definitely out of depression, says the Standard Statistics Co., of this city, in a current survey of marketing opportunities.

SIMONIZES LACQUER UNITS

ST. LOUIS—Arthur Lindburg, local Westinghouse distributor, Simonizes all the lacquered cabinets that he has on his display floor. He says that the cost is approximately $3 per unit.

INDUSTRY USES 200 MILLER CO. PRODUCTS

AKRON, Ohio—More than 200 shapes and sizes of rubber goods are manufactured for use in electric refrigerators, according to the Miller Rubber Co., Inc., division of the B. F. Goodrich Co.

About 150 shapes and sizes are required in the manufacture of rubber door gaskets alone. Among rubber equipment used in electric refrigerators are sponge rubber gaskets, hard rubber knobs, panel seals, gliders, insulation strips, and door gaskets.

"For each of these purposes, a special rubber compound has to be devised and hundreds of tests conducted to see that it will withstand the usage for which it has been designed," Miller engineers state. "All rubber should be odorless, non-staining, long-aging, and flex without breaking."

As an example of the severe tests imposed on every bit of rubber used by the refrigeration industry are requirements for door gaskets. These must be built to withstand flexing 1,000,000 times without breaking, usage which would take the average householder more than 50 years to exact from a refrigerator, they report.

SERVICE COMPANY USES FROSTED SIGN IN WINDOW

DETROIT—In the window of Mercier and Clark, Inc., independent refrigeration service company here, is a large sign of frost-coated metal tubing bearing the words, "Refrigerator Service—Garfield 5533," which has been effective in attracting much attention to the shop, according to C. C. Card, office manager of the organization.

The tubing, bent to form the words of the sign, is connected to a compressor manufactured by the company, and a 1/3-hp. motor located in the basement of the shop. The letters of the sign become coated with a heavy layer of frost which may be seen easily from the street as well as the sidewalk.

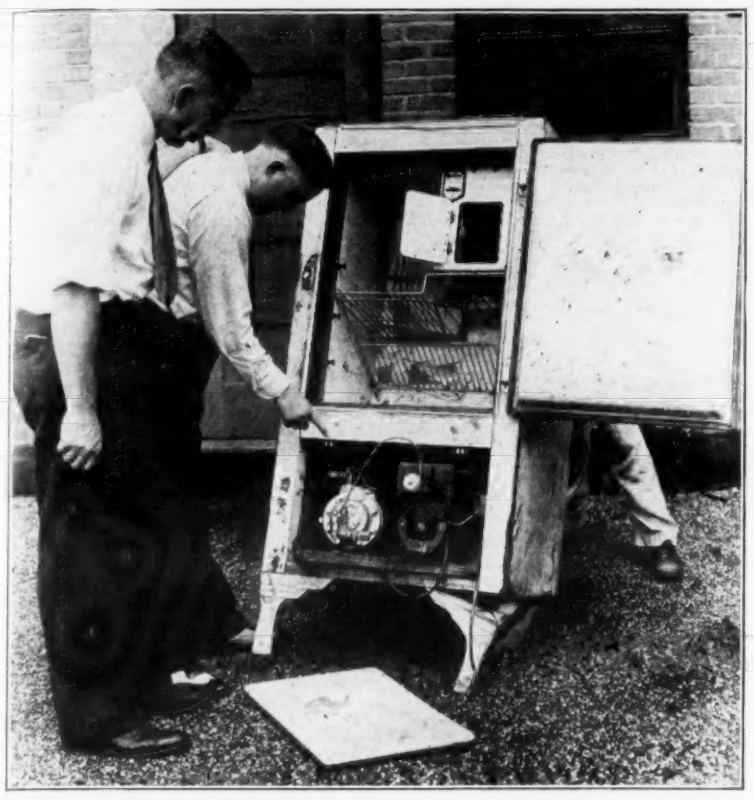
Card believes it was wise to put in the sign only such information as is of interest to the public—the nature of the service offered, and the company telephone number. This, he says, makes for easy reading, since it does not present to passersby the mass of words and figures which would be a result of including in the sign the name of the company and its street address.

BRANDT MADE WESTINGHOUSE RENEWAL PARTS MANAGER

EAST PITTSBURGH—E. C. Brandt, who has been assistant works manager for the Westinghouse Electric & Manufacturing Co. here has been made manager of renewal parts in all Westinghouse plants.

In his new capacity he will have full responsibility for manufacture at Homewood works, Pittsburgh, and the coordination of all renewal parts manufacture, expansion of renewal parts business, coordination of headquarters and district sales, service department renewal parts activities, engineering effort, stocks and servicing.

It Still Works



After the destructive flood which swept through Kanawba County, West Virginia, last July, this Norge was recovered and found in good operating condition, except for the broken leg.

MARLIN-ROCKWELL SALES OFFICES CONSOLIDATED

JAMESTOWN, N. Y.—The sales activities of Marlin-Rockwell Corp., manufacturer of ball bearings, formerly carried on independently by its subsidiary companies, the Gurney Ball Bearing Division, Jamestown, N. Y.; the Standard Steel and Bearings, Inc., Plainville, Conn.; and the Strom Bearings Co., Chicago, will be consolidated, and all sales made through the Marlin-Rockwell Corp. sales organization.

The executive offices of the sales organization will be in Jamestown, N. Y. The eastern district sales office at Plainville, Conn., and the western district sales office in Chicago, will be maintained for the convenience of customers.

Branch sales offices will be maintained at their former addresses in Detroit, Cincinnati, Cleveland, Los Angeles, and San Francisco. A new branch sales office has been opened at 40 West 63rd St., New York City.

W. S. CULVER RETIRES AFTER 47 YEARS WITH G. E.

SCHENECTADY, N. Y.—Concluding 47 years in the employ of the General Electric Co. and its predecessors, William S. Culver, district engineer of the east central district of the company, with headquarters at Cleveland, retired from active duty Saturday.

By appointment of W. J. Hanley, commercial vice president in charge of the district, C. W. Fick, assistant district engineer, became district engineer to succeed Culver, effective Sept. 30.

Kold-Hold System Introduced

(Concluded from Page 1, Column 3)

system may be considerably smaller than that used with a direct expansion system, due to the fact that it is not required to directly meet the extreme or peak load as is the case with the latter method. Where a central refrigerating unit is available no compressor is needed.

The compressor operates while the truck is being loaded and during stops at night by a plug-in on a lighting circuit, and does not operate at all on the road, enough refrigeration being stored up in the eutectic solution to maintain constant temperatures for 48 hours or more.

Walk-in coolers and dairymen's coolers represent other applications for the Kold-Hold system, with ensuing advantages. The Kold-Hold engineers declare that their system will occupy less space than that taken up by the average evaporator, and they also point to the fact that the compressor need be in operation only during the night, when a lower power rate may be had.

NEW SERVICE FIRM STARTED IN CAMDEN, N. J.

CAMDEN, N. J.—Gordon & Melick, a new concern for servicing and installing both household and small commercial refrigerators, has been organized here.

Gordon, one of the members of the concern, was with the Welsbach factory service department for more than five years, while Melick was connected with the same department of Welsbach.

N. Y. ENGINEERS HEAR TALK ON ICE CREAM

(Concluded from Page 1, Column 2)

new, and never a time when the whole thing was obsolescent.

Recently, when Borden acquired the modernized Anheuser-Busch plant, and found it so much more efficient than their other metropolitan factories that they decided to build another entirely new outfit, in the Bronx, and to renovate and build additions to the old Reid factory in Brooklyn.

This decision was greatly accelerated, Sealey said, by the desire of the controlling corporation to go into the packaged goods business.

Before showing pictures of the interior workings of the Bronx Reid plant, he explained that there are four steps in the making of ice cream.

The first of these is the receiving, mixing and pasteurizing of the raw materials, which are liquid cream, liquid condensed milk, and in this territory, liquid cane sugar. To these are added the flavoring.

"The next step is the freezing of the mix into a semi-solid form. This is done in a freezer identical in principle with the old hand turned ice-and-salt affair of the Sunday back porch," he said.

Then the semi-solid mix is packaged and filled either into the regulation 5 gal. can or into containers of the ready-packaged quart or pint type. A third variation is in the making of specialties —five-cent cups, chocolate coated bars, slices, ribbons, stick ice cream, etc.

Hardening Process

Finally the packaged or contained cream is hardened, that is, frozen into the solid state in which it is sold. Sealey explained that in this state the mix need not be agitated at all, the first and second stages of manufacture being sufficient to make the ice cream homogenuous.

Illustrating his remarks with lantern slides, Sealey then said that the raw material comes into the plant in 10-gal. cans unless frozen cream is used. This is received in light 5-gal. tins which are only used once and then thrown away. This has been found, paradoxically, to be the cheapest way of packing frozen cream.

Immediately after being dumped out of the receiving tins, the raw material must be pasteurized. Great care must be exercised, Sealey said, in passing the mix through the temperatures from 70 to 80° F., at which point the bacteria would be active. Lactic acid bacteria offer the greatest hazard, Mr. Sealey said.

The pasteurizers are simply 1,000-gal. steam-basketed vats, Sealey showed, in which the mix is kept at 143 to 145° F. for 30 minutes, and then cooled with great rapidity, again to avoid the dangerous temperatures between 70 and 80°.

After the mix is pasteurized, and before it is frozen, Sealey said, it must undergo a process of homogenization. Under a microscope, he said, the milk as received will already have developed little islands of butter fat, and if these are not broken up, they will become the nuclei of lumps in the finished product.

Operation of Homogenizer

The homogenizer passes the milk through minute orifices to break up these particles. A pressure of 2,500 lbs. is required to force the milk through, this comes from a three-cylinder pump.

Gravity takes the homogenized mix on to the mix cooler. This Sealey described as series of tubes, the upper of which are covered by water, the lower by brine or ammonia.

The freezer is next in line to the mix cooler. Inside is a dasher and scraper which whips the mix, and constantly takes the frozen product off the rim of the can, and replaces it with unfrozen mix from the center.

The semi-frozen ice cream comes out of the freezer into a hopper, and runs through a pipe to the filling machines, Sealey continued. Specialties which must go in small paper cups are filled automatically, and sent on a belt to the hardening room. Some types of packaged goods are filled by girls and capped by machinery, others reverse this process. Slices and ribbons of ice cream are hardened at –40° F.

There are two hardening tunnels at the Reid plant, 85 and 100 ft. long. Each has a belt conveyor running through it, carrying baskets of packaged goods.

It takes two hours to harden this cream at –30° F. The belt conveyors need no attendants to watch them. If a basket hops off the belt, an occasional happening, the current is turned off by an ammeter contact breaker which is sensitive to one-thirtieth of an ampere.

The freezers in his plant work best at –10° F., the hardeners at –20 to –30°, and the storage rooms are kept at –10 to –29° F.

Finishing up his talk, Sealey said that in the final step of ice cream manufacture, namely distribution, solid CO_2 is used. He does not find this entirely satisfactory, but says that ice cream trucks will not be able to use mechanical refrigerators until a refrigerator is built that will be made especially to withstand the heavy wear of constant transportation.

Sealey pointed out that Borden and National Dairy alone could use approximately 25,000 refrigerated trucks if they were perfected.

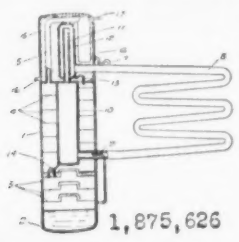
REVIEW OF LATEST PATENTS GRANTED

ISSUED SEPTEMBER 6, 1932

1,875,539. REFRIGERATOR. Richard C. Wolfe, Beverly Hills, Calif. Filed Aug. 4, 1930. Serial No. 472,855. 12 Claims. (Cl. 62—141.)

1. In a refrigerator including a chamber to receive the substance to be cooler, a pervious membrane, a refrigerant at atmospheric pressure on one side of the membrane, and means for reducing the pressure on the opposite side of said membrane so that the refrigerant is forced through the pervious membrane.

1,875,626. REFRIGERATION. Guido Maiuri and Raoul Felice Bossini, London, England, assignor, by mesne assignments, to Electrolux Servel Corp., a Corporation of Delaware. Filed May 26, 1930, Serial No.



455,770, and in France May 31, 1929. 32 Claims. (Cl. 62—119.5.)

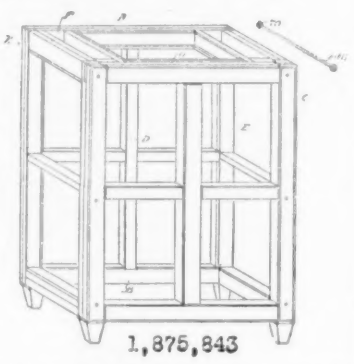
1. That improvement in the art of refrigeration which consists in forming a ternary mixture of refrigerant vapor, inert gas and vapor of absorption liquid and lowering the temperature of the ternary mixture in stages.

10. In refrigerating apparatus, the combination of a refrigerant vaporizer, an absorption fluid vaporizer, and means providing restricted communication therebetween.

1,875,654. MEANS AND METHOD OF REFRIGERATION. Bo Folke Randel, San Diego, Calif. Filed Dec. 10, 1930. Serial No. 501,173. 7 Claims. (Cl. 62—119.5.)

1. The method of refrigeration comprising introducing a solution of a gas in a liquid into a space filled with a supplementary gaseous medium inert towards the solution, separating the gas in solution from the liquid forming a mixture of said gas and said inert gaseous medium, then separating said separated gas from said supplementary gas by reabsorbing one in the liquid and condensing the other to liquid state.

1,875,843. REFRIGERATOR FRAME. Gebhard C. Bohn, St. Paul, Minn. Filed May 5, 1930. Serial No. 449,892. 6 Claims. (Cl. 217—12.)



1. A knock-down refrigerator assembled from interlocking units, comprising a base, end members engaging said base and supported thereby, said end members having forwardly and rearwardly projecting elements to support front and rear members, a front and a rear member having recesses to receive the projections on the end members, a removable top portion insertable in the upper end of the enclosure formed by the front, rear, and end members, means carried by the top portion to removably support a mechanical refrigerating unit by horizontal insertion of the latter through the front of the frame and a removable rail mounted transversely across the forward portion of said top member.

1,875,875. REFRIGERATING METHOD AND APPARATUS. Erich Kindermann, Berlin-Reinickendorf-West, Germany, assignor to Deutsche Gasgluhlicht-Auer-Gesellschaft mit beschrankter Haftung, Berlin, Germany, a Corporation of Germany. Filed March 21, 1929, Serial No. 348,743, and in Germany March 26, 1928. 18 Claims. (Cl. 62—120.5.)

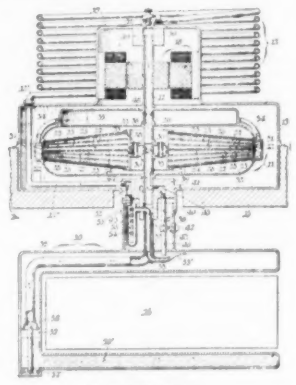
1. In the method of refrigeration which involves the heating of a liquid solvent for the refrigerant, in a generator-absorber, and the condensation of the liberated refrigerant, alternating with evaporation of such condensed refrigerant, the step which consists in returning said solvent from the condenser through the evaporator to the generator-absorber during the period of heating the generator-absorber and of condensing the refrigerant.

8. An absorption refrigerating apparatus comprising a generator-absorber having an inlet and an outlet a condenser whose inlet is connected with the outlet of the generator-absorber, and evaporating means having an inlet connected with the outlet of the condenser and an outlet connected with the inlet of the generator-absorber, said means consisting of a plurality of separate evaporators each having an upper space for gas and a lower space for liquid, the gas space of all of said evaporators being in permanent communication with each other, while the liquid spaces of the several evaporators normally hold separate bodies of liquid but are connected in series to permit successive passage of liquid from one evaporator to the next.

1,875,977. REFRIGERATING APPARATUS. Louis I. Beckwith, Brookline, Mass. Filed Oct. 29, 1931. Serial No. 571,733. 8 Claims. (Cl. 248—2.)

8. A column for use in supporting refrigerating apparatus, said column comprising upper and lower relatively rotatable sections, means for supporting a load substantially entirely from the lower of said relatively rotatable sections, the upper of said relatively rotatable sections having its upper end portion screw-threaded, a collar threaded on this upper end portion, a cap element adapted to contact with the ceiling of a room, and a spring interposed between said cap element and said collar to compensate for changes in temperature.

1,876,212. REFRIGERATION. Arthur R. Earnshaw, Wynnewood, Pa. Filed March 25, 1931. Serial No. 525,145. 27 Claims. (Cl. 62—115.)



1. The method of refrigeration which consists in evaporating refrigerant fluid in an inert gas under pressure, separating the two gases in the mixture by progressive-diffusion, and condensing the refrigerant gas for re-evaporation in the recovered inert gas.

1,876,266. APPARATUS FOR PRODUCING CAKES OF SOLID CARBON DIOXIDE. Burt H. Weston, Wood River, Ill. Filed March 20, 1929. Serial No. 348,635. 14 Claims. (Cl. 62—121.)

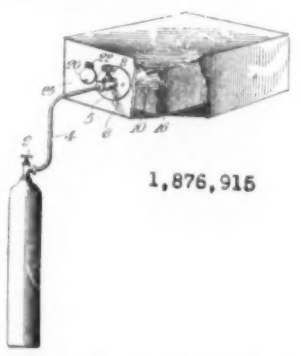
1. In an apparatus for producing solid carbon dioxide, a casing having one end open, a mold adapted to be inserted in said casing, means for supporting said mold in said casing and closing the open end of said casing, said mold being of less diameter than said casing to provide a space between said parts, said mold having an opening to connect the interior thereof with said space, means for introducing liquid carbon dioxide under pressure into said mold and causing the same to expand and form carbon dioxide snow, and means for compressing said snow in said mold while said mold is supported within said casing.

ISSUED SEPTEMBER 13, 1932

1,876,596. REFRIGERATOR DOOR. Harry H. Belding, Greenville, Mich., assignor to Gibson Refrigerator Co., Greenville, Mich., a Corporation of Michigan. Filed Aug. 12, 1930. Serial No. 474,696. 7 Claims. (Cl. 20—35.)

1. Refrigerator door construction including a wood frame, a front cover plate, and a back cover plate, the front plate having an edge flange bent around the rear side of the frame to lie in a plane parallel to that of the door, the back plate also having an edge flange in a plane parallel to that of the door, and means forced into the wood frame through spaced bent up portions of the edge flange of said back plate near an edge thereof for securing the latter to the frame the direction of drive of said means being in a plane parallel to that of the door.

1,876,915. REFRIGERATOR. Samuel Gordon, Far Rockaway, N. Y., assignor to International Dry Refrigeration Corp., Wilmington, Del., a Corporation of Delaware. Filed May 14, 1929. Serial No. 362,898. 1 Claim. (Cl. 62—121.)



In a refrigerator for utilizing a compressed, gaseous refrigerant, a refrigerating unit comprising an expansion chamber, a cold chamber surrounding said expansion chamber, means permitting the escape of gases from said first-named chamber to the second, a displaceable closure for normally preventing the escape of gases from said second chamber and a brine tank surrounding and forming a portion of the walls of said second-named chamber.

1,876,959. HUMIDIFIER. Clarence H. Kelsea, Belmont, and Charles I. Geddes, Arlington, Mass., assignors to Peter Gray & Sons, Inc., Cambridge, Mass., a Corporation of Massachusetts. Filed Feb. 25, 1930. Serial No. 431,253. 11 Claims. (Cl. 261—107.)

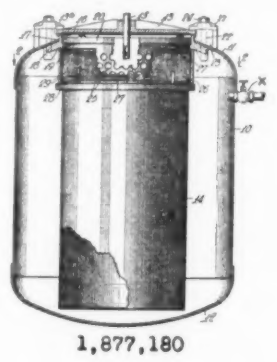
1. A humidifier comprising a box-like structure having sheet metal side walls and a sheet metal trough-support formed integrally with and extending between the side walls, said support being provided with openings, water-holding troughs removably inserted into said openings in the trough-supporting member, and end pieces welded to the ends of the side walls.

1,877,050. ICE SERVER. Rembert Ray, Venice, Calif. Filed Jan. 16, 1930. Serial No. 421,269. 4 Claims. (Cl. 312—71.)

1,877,143. REFRIGERATING APPARATUS. Tracy D. Montee, Pasay, Philippine Islands. Filed Dec. 29, 1930. Serial No. 505,439. 1 Claim. (Cl. 62—95.)

Refrigerating apparatus comprising a coil consisting of inner and outer tubes, the outer tube having heads closing its ends and necks projecting outwardly from the heads, the inner tube being of greater length than the outer tube and projecting through the necks carried by the heads at the ends thereof, the inner tube being of small diameter and the outer tube of appreciably greater diameter than the inner tube and oblong in cross section to provide flat faces presenting a large area for contact by air surrounding the coil, and a fluid having heat transmitting qualities filling the outer tube and constituting means for conducting heat through the outer tube to the inner tube for absorption by a heat absorbing medium passed through the inner tube, the outer tube having filling openings formed near its ends, reinforcing blocks in said openings having threaded openings formed therein, and plugs screwed into the threaded openings to close the same.

1,877,180. APPARATUS FOR AND METHOD OF FREEZING CARBON DIOXIDE. Charles L. Jones, Pittsburgh, Pa., assignor to Dryice Corp. of America, New York, N. Y., a Corporation of Delaware. Filed March 13, 1929. Serial No. 346,546. 12 Claims. (Cl. 62—121.)



1. An apparatus for solidifying carbon dioxide, including a chamber constructed to withstand internal pressures greater than 75 lbs. per square inch, having an opening whereby it is accessible only through the top, a closure for said opening and means adapted to discharge liquid carbon dioxide into the chamber and conduit for escape of gas, said conduit being formed or provided with means for imposing desired back pressure in said chamber.

1,877,181. REFRIGERATIVE APPARATUS. David H. Killeffer, Yonkers, N. Y., assignor to Dryice Equipment Corp., New York, N. Y., a Corporation of Delaware. Filed March 2, 1929. Serial No. 343,860. 2 Claims. (Cl. 62—91.5.)

1. A refrigerative apparatus including an outer container for enclosing products to be refrigerated, means within said container affording a restricted path for thermo circulation of a refrigerant atmosphere in combination with a container of solid carbon dioxide in heat absorbing relation to said atmosphere, and having gas outlet means of cross sectional area and flow resistance suitable for maintaining substantially internal pressure to impart substantial velocity to the escaping gas and means for directing said escaping gas into said refrigerant atmosphere, in a region and in a direction of natural thermo flow thereof.

1,877,187. REFRIGERATING APPARATUS AND METHOD. James W. Martin, Jr., Yonkers, N. Y., assignor to Dryice Equipment Corp., New York, N. Y., a Corporation of Delaware. Original application filed Dec. 8, 1928, Serial No. 324,639. Divided and this application filed March 21, 1930. Serial No. 437,651. 20 Claims. (Cl. 62—91.5.)

1. A refrigerating apparatus including an outer receptacle, a container for solid carbon dioxide which permits escape of gas only by overflow into a circuit for flow of said gas from the container, including a downflow conduit therefrom and an upflow conduit in communication with said downflow conduit and a return conduit to the solid carbon dioixde container, said circuit having an outlet for excess gas to the outside of said apparatus.

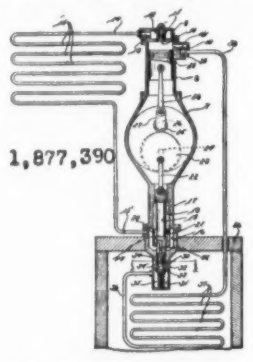
1,877,223. METHOD OF HUMIDIFYING AIR. Everett S. Buck, Cincinnati, Ohio, assignor, by mesne assignments, to The Edwards Mfg. Co., Cincinnati, Ohio, a Corporation of Ohio. Original application filed Feb. 27, 1929, Serial No. 343,047. Divided and this application filed April 30, 1930. Serial No. 448,615. 9 Claims. (Cl. 261—1.)

1. A method of humidifying air being heated which comprises heating the air by flue gases, simultaneously condensing water vapor constituent of said flue gases and simultaneously transferring the condensate to the air being heated.

1,877,336. PANEL FOR THE WALLS AND DOORS OF REFRIGERATORS AND COLD STORAGE ROOMS. George Lovell and George Digby Lovell, Stratford, London, England. Filed May 1, 1931, Serial No. 534,268, and in Great Britain Dec. 18, 1930. 3 Claims. (Cl. 20—56.5.)

1. A heat insulating transparent double-walled panel for the walls and doors of refrigerators and cold storage rooms, comprising in combination: two glass plates; air-tightly adherent metal rims on each of said glass plates; a metal frame into which said metal rims are inserted; and soldered joints uniting said metal rims air-tightly with said metal frame, substantially as described.

1,877,390. MECHANICAL REFRIGERATOR. Merrill Davis, Detroit, Mich. Filed



Dec. 13, 1929. Serial No. 413,727. 16 Claims. (Cl. 62—115.)

1. In a mechanical refrigerator, a com-

(Continued on Page 7, Column 1)

IN FIELD OF ELECTRIC REFRIGERATION

(Continued from Page 6, Column 5)

pressing mechanism; a receiving compartment; a cooling coil communicating with said compressing mechanism and with said receiving compartment and positioned therebetween; a refrigerating coil adapted for communicating with said receiving compartment and with said compressing mechanism; movable means for controlling communication of said coil with said receiving compartment; a plunger for moving said movable means to open position, said plunger being constructed and arranged to permit the inflow of fluid under pressure between said plunger and said movable means upon withdrawal of said plunger from said movable means.

1,877,536. REFRIGERATION. John G. Ruckelshaus and Norman W. Kempf, Newark, N. J. Filed May 6, 1931. Serial No. 535,444. 10 Claims. (Cl. 62—5.)

1. In a refrigeration system of the absorption type, in combination with an absorbent and a refrigerant and means for heating the absorbent to distill the refrigerant therefrom, a device for controlling the supply of energy to said heating means comprising means for supplying such energy and means operable by the flow of such energy to the heating means for cutting off the supply of such energy after a predetermined interval.

1,877,587. METHOD OF PREPARING APPLES FOR FREEZING. Rudolph A. Rasche, Cincinnati, Ohio. Filed Jan. 3, 1931. Serial No. 506,502. 5 Claims. (Cl. 99—8.)

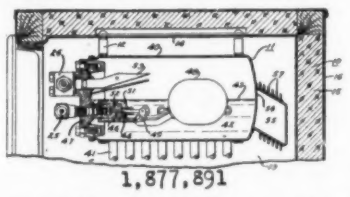
1. In the cold processing of fresh apples for cold storage the steps of placing apple pieces in a brine solution and placing them under a vacuum, then relieving the vacuum and placing them under atmospheric air pressure, then sugaring the fruit and placing it in cold storage at a temperature well below freezing.

1,877,685. REFRIGERATOR. Reuben Eli Ottenheimer, Baltimore, Md. Filed Aug. 25, 1927. Serial No. 215,333. 26 Claims. (Cl. 183—4.)

10. A structure embodying a dead-air chamber, a passage extending through a wall of said chamber, a moisture-absorbing material in said passage, and means for renewing the moisture absorbing material.

ISSUED SEPTEMBER 20, 1932

1,877,891. REFRIGERATING APPARATUS. Jesse G. King, Dayton, Ohio, assignor to Frigidaire Corp., Dayton, Ohio, a Corporation of Delaware. Filed May 29, 1931. Serial No. 541,000. 9 Claims. (Cl. 62—126.)



1,877,891

1. In a refrigerating system comprising in combination, an evaporator including a liquid refrigerant inlet opening and a gaseous refrigerant outlet opening, means controlling the ingress of liquid refrigerant through said inlet opening to said evaporator and for normally preventing liquid refrigerant from rising above a predetermined level therein, conduit means communicating with the interior of said evaporator and extending outwardly therefrom, the point of communication of said conduit means with said evaporator being disposed in a plane between the plane of said outlet opening of said evaporator and the liquid refrigerant level being maintained therein, said conduit means being normally entirely free of liquid refrigerant and arranged to receive liquid refrigerant rising above the normal level maintained in said evaporator by said first named means and said conduit means being also arranged to insolate liquid refrigerant received therein out of contact with the main body thereof in said evaporator.

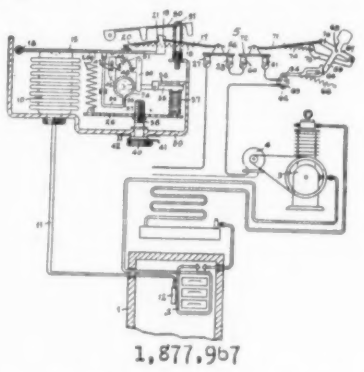
1,877,905. AIR CONDITIONING BLOWER. Joseph M. Le Grand, New York, N. Y., assignor to Carrier Engineering Corp., Newark, N. J., a Corporation of New York. Filed Jan. 12, 1931. Serial No. 508,219. 8 Claims. (Cl. 257—244.)

1. A combined blower and conditioner for air comprising in combination, a rotary blower having a volute discharge, conditioning means housed within said volute, each element of said means having a form substantially that of a cross-section of the volute, and means to admit and exhaust air conditioning fluids to and from said means.

1,877,965. APPARATUS FOR COOLING MILK. Alva R. Pursley, Eufaula, Ala. Filed May 23, 1931. Serial No. 539,457. 2 Claims. (Cl. 257—178.)

1. In a milk cooler a substantially conical shaped container for the cooling medium provided with a shaft tunnel extending upward within it from its bottom, an agitator arranged to move the contents of said chamber and a shaft within said tunnel arranged to drive said agitator, substantially as set forth.

1,877,967. REFRIGERATOR CONTROL. Estel C. Raney, Columbus, Ohio. Filed April 29, 1932. Serial No. 608,159. 17 Claims. (Cl. 62—4.)



1,877,967

1. In a refrigerator control system, means for maintaining a normal operating refrigerating cycle between fixed temperature limits, means for periodically modifying the upper temperature limit, means for adjusting the temperature range of the normal operating cycle, a compensating means whereby the upper temperature limit of the periodic cycle remains at a practically fixed value regardless of adjustment of the normal operating cycle.

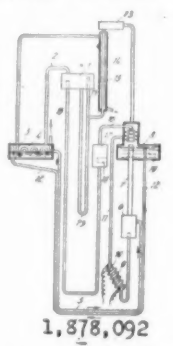
1,878,012. AIR CONDITIONING AND DISTRIBUTING UNIT. Alfred E. Stacey, Jr., Essex Fells, and Carlyle M. Ashley, South Orange, N. J., assignors to Carrier Engineering Corp., Newark, N. J., a Corporation of New York. Filed June 25, 1930. Serial No. 463,679. 8 Claims. (Cl. 257—137.)

1. A unit of the character described having air heaters, means for intaking air within said unit through said heaters, means for intaking air within the unit in a course bypassing the heaters, and a nozzle arrangement fed from a desired source, for producing an induction effect capable of causing said intaking of air within the unit.

1,878,042. REFRIGERATION BY MEANS OF CARBON DIOXIDE IN SOLID STATE. James S. Wagner, Charleroi, Pa., assignor of one-fifth to George W. King, Fayette County, Pa., one-fifth to McClelland Hixenbaugh, one-fifth to Harry P. Ray, and one-fifth to Charles S. Bateman, Charleroi, Pa. Filed Jan. 18, 1930. Serial No. 421,714. 1 Claim. (Cl. 62—91.5.)

In apparatus for effecting refrigeration by means of carbon dioxide in solid state the combination of a container and a coil; the container comprising finned walls of heat-conducting material of strength to withstand great internal pressure and removable cover adapted to be secured in hermetically tight closure upon said container walls, the said container being provided interiorly with transverse partition walls preventive of shifting of a contained charge of refrigerant, and the coil being in communication with the container, the said coil at its intake end being equipped with a manually operable pressure control valve and at its delivery end with a check valve.

1,878,092. CONTINUOUS ABSORPTION REFRIGERATING APPARATUS. Edmund Altenkirch, Alt-Landsberg-Sud, Germany, assignor to Siemens-Schuckertwerke Aktiengesellschaft, Berlin-Siemensstadt, Germany, a Corporation of Germany. Filed Sept. 29, 1928, Serial No. 309,262, and in Germany Oct. 12, 1927. 16 Claims. (Cl. 62—119.)



1,878,092

12. Apparatus for increasing the efficiency of an absorption refrigerating system having a boiler, an absorber, a device for changing a refrigerant vapor to a condensed fluid phase and an evaporator, said apparatus including means for draining excess absorption liquid from the evaporator into the boiler and means for causing an exchange of heat between said excess liquid and vapors being expelled from the boiler.

1,878,111. REFRIGERATOR CABINET CONSTRUCTION. William D. Collins, Evansville, Ind., assignor to Servel, Inc., New York, N. Y., a Corporation of Delaware. Filed July 27, 1928. Serial No. 295,701. 8 Claims. (Cl. 220—9.)

1. A refrigerator cabinet comprising an inner assembly and a detachable casing for said inner assembly, said inner assembly comprising a front supporting frame, a liner having an open side; means securing said liner to said front frame with its open side adjacent the frame, and insulating material for the liner, said insulating material being secured to the liner and front supporting frame by said means.

1,878,181. LID FOR REFRIGERATED CABINETS. John R. Replogle, Detroit, Mich., assignor to Kelvinator Corp., Detroit, Mich., a Corporation of Michigan. Filed Feb. 5, 1927. Serial No. 166,052. 8 Claims. (Cl. 220—24.)

1. A lid structure, for closing an opening leading to the food storage chamber in a refrigerated cabinet, comprising a non-deformable hollow base element formed of a molded rubber composition, said base including a bottom wall terminating in a laterally flanged peripheral wall, and a sheet metal cover extending across said flange, said cover being detachably secured to said base element.

1,878,198. APPARATUS FOR FREEZING FOOD PRODUCTS. John G. Souther, Jamaica Plain, Mass., assignor, by mesne assignments, to Frosted Foods Co., Inc., Dover, Del., a Corporation of Delaware. Filed Dec. 27, 1928. Serial No. 328,706. 10 Claims. (Cl. 62—101.)

1. Apparatus for freezing food products, comprising a container having a body portion, and a cap supporting an inwardly directed deflector in spaced relation to the body of the container.

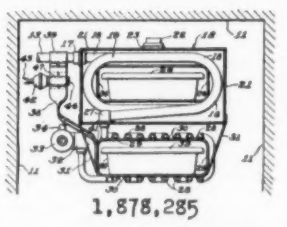
1,878,225. REFRIGERATING APPARATUS. Leonard Kay Wright, Jackson Heights, Long Island, N. Y. Filed Jan. 4, 1928. Serial No. 244,445. 4 Claims. (Cl. 62—118.)

2. In a refrigerating apparatus, a refrigerating compartment, at one side of the compartment a tank adapted to receive a refrigerant, at the opposite end of the compartment a well connected with the tank by a fluid line, and an evaporating coil adjacent the well and supplied with a fluid from the well.

1,878,284. EVAPORATOR FOR REFRIGERATORS. George W. Mason, Detroit, Mich., assignor to Kelvinator Corp., Detroit, Mich., a Corporation of Michigan. Filed April 11, 1929. Serial No. 354,349. 7 Claims. (Cl. 62—8.)

1. A refrigerant evaporating unit comprising a curved liquid refrigerant evaporating conduit disposed throughout substantially its entire length in uniform thermal contact with a bottom portion of a freezing tray, a thermostat for controlling the periods of operation of the evaporating unit, and a metallic attachment connecting the thermostat with the freezing tray to provide for the conduction of heat therebetween.

1,878,285. REFRIGERATOR EVAPORATOR AND TEMPERATURE CONTROL THEREFOR. George W. Mason, Detroit, Mich., assignor to Kelvinator Corp., Detroit, Mich., a Corporation of Michigan. Filed April 11, 1929. Serial No. 354,350. 8 Claims. (Cl. 62—8.)



1,878,285

1. A refrigerant evaporating unit comprising a brine tank having a refrigerant evaporating conduit disposed therein, said conduit being in direct communication with a suction line of a refrigerant condensing unit, a freezing tray sleeve disposed within the brine tank and surrounded by the aforesaid refrigerant evaporating conduit, a freezing tray sleeve disposed externally of the brine tank and surrounded by a refrigerant evaporating conduit communicating with the first mentioned conduit, a refrigerant expansion device for discharging refrigerant fluid directly into the last mentioned conduit, a metallic heat conductor thermally contacting at its opposite ends, the aforesaid suction line and the last mentioned freezing tray sleeve, and a thermostat secured to an intermediate portion of the heat conductor for controlling the operation of the refrigerant condensing unit.

1,878,301. TEMPERATURE CONTROLLING DEVICE FOR REFRIGERATING MACHINES. Charles C. Thomas, Detroit, Mich., assignor to Kelvinator Corp., Detroit, Mich., a Corporation of Michigan. Filed April 11, 1929. Serial No. 354,317. 5 Claims. (Cl. 62—8.)

1. An artificial refrigeration apparatus comprising a refrigerant fluid evaporating device adapted to receive a freezing tray therein, a grid having upwardly projecting portions disposed in said freezing tray, a metallic contacting member in thermal contact with said upwardly projecting portions, a fluid containing bulb in thermal contact with the contacting member, and a thermostat actuated by the aforesaid bulb for initiating the operation of a refrigerant condensing unit.

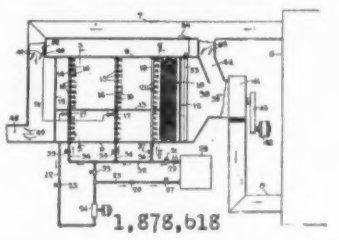
1,878,403. REFRIGERATING MACHINE. Emil Kagi, Winterthur, Switzerland, assignor to the Firm of Sulzer Freres Societe Anonyme, Winterthur, Switzerland. Filed Aug. 24, 1929, Serial No. 388,132, and in Switzerland Oct. 18, 1928. 5 Claims. (Cl. 62—115.)

1. In a refrigerating machine the combination of a compressor, an evaporator, an oil collector, a pipe connecting the evaporator to the oil collector, a refrigerant pipe connecting the evaporator to the suction chamber of the compressor, a discharge pipe connecting the oil collector to the compressor, and means for causing a lower pressure in the discharge pipe than the pressure in the refrigerant pipe.

1,878,542. METHOD AND APPARATUS FOR COOLING MINE AIR. Allan S. Richardson, Butte, Mont. Filed Nov. 23, 1931. Serial No. 576,857. 6 Claims. (Cl. 62—196.)

1. The method of conditioning mine air which comprises, contacting the air with water at the workings, circulating said water in heat exchange relation with a second cooling medium having a freezing point substantially lower than that of water to transfer heat from said water to said second cooling medium, circulating said second cooling medium in a closed circuit, and removing heat from said second cooling medium at a point remote from the workings.

1,878,618. AIR CONDITIONING. Irving C. Baker, York, Pa., assignor to York Ice Machinery Corp., York, Pa., a Corporation of Delaware. Filed Oct. 4, 1929. Serial No. 397,330. 6 Claims. (Cl. 261—115.)



1,878,618

1. The method of maintaining desired conditions in a room which consists in passing fresh air and air drawn from the room in substantially constant relative proportions through refrigerated water sprays, varying the number of sprays in operation in response to conditions in the room, to vary the averaged refrigerating effect on the air, mixing the air so treated with a substantially constant relative proportion of untreated air drawn from the room and discharging the resulting mixture into the room, the rate of such discharge being maintained substantially uniform.

1,878,694. REFRIGERATING SYSTEM WITH LIQUID AND GAS TRAPS. Norman H. Gay, Los Angeles, Calif. Filed Aug. 9,

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